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Performance Analyzer

User's Manual

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for

Version 4.0

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Chapter 1: GETTING STARTED

1.1 SYSTEM REQUIREMENTS

This section identifies the system and hardware requirements necessary to run Performance Analyzer (PA) software.

Verify Software and Memory

- DOS Version 3.3 or later.

NOTE: If you are running PA on a network you must have DOS version 5.0 or later.

- Memory (RAM) Requirements:
 - ⇒ 535K of conventional memory is required at PA start-up
 - ⇒ Exact conventional memory requirements are dependent upon the number of WBS and/or Functional elements. The larger the number of elements, the more memory the system will require.
 - ⇒ The PA graph "annotation" feature and LOTUS PIC file feature may require additional conventional memory above the specified 535K.
- The CONFIG.SYS file on the root directory must specify a minimum of "BUFFERS=20" and "FILES=40." If it does not, use a file editor, like DOS Edlin or MS Editor, to modify your CONFIG.SYS file so that it does. The system relies on these settings to work properly.

NOTE: While PA v4.0 is a windows-like product (i.e., a graphical user interface) it is not a true Windows application. PA v4.0 should NOT be run from Windows as this may cause memory related system errors!

Verify Hardware

- An 80386, or 80486-based IBM-PC/AT compatible computer is recommended. A fast hard drive (20 milliseconds) or better is recommended. A hard drive with at least 6 megabytes of free disk space is required. This applies to both first time installations, re-installations, and upgrades from prior PA versions.
- Approximately 1 megabyte of disk space is required for each new contract (exact requirements depend on the number of elements and number of months of data). During normal operations PA requires at least 1 megabyte of free hard disk space at all times for swapping.
- An EGA, VGA, or Hercules compatible graphics card (color VGA is recommended)
- An EGA/VGA color or monochrome monitor (color is recommended)

Microsoft compatible mouse (optional but highly recommended)

- A printer, plotter, or other device listed below is recommended to produce hard copy charts:

- ⇒ IBM Graphics Printer, or printer that can print IBM graphics character
- ⇒ Hewlett Packard Laserjet, all models (2 Megabytes RAM required to print graphics)
- ⇒ Postscript compatible printer
- ⇒ Hewlett Packard (HP) Deskjet/Paintjet/Inkjet printer
- ⇒ Hewlett Packard Plotter 7550A, 7475, 7470A or compatibles
- ⇒ Additional printers and plotters supported are listed in the PA Maintenance setup options

- Local Area Network (LAN) Requirements (Optional):

- ⇒ Identical to stand-alone PC
- ⇒ Read Section 1-2 for a discussion of installing PA on a LAN environment.
- ⇒ Read Maintenance documentation in Chapter 5 for user setup and user passwords.

NOTE: Some network software will cause conflicts with PA. If you are operating PA on a network and experiencing problems, try removing your network software from initial loading procedures (in CONFIG.SYS and AUTOEXEC.BAT.) Consult with your network specialist for assistance in this process. Contact the PA Hotline for further assistance.

- Hayes Compatible Modem for Communication Module (Optional)

Helpful Hints: Refer to your MS DOS / MS Windows manual for additional information on customizing your system. PA is a very disk-intensive program. A fast hard drive (20 milliseconds or faster) will improve your performance dramatically. You can also use a disk cache program and/or defragment your hard drive to improve PA's response times. Check with your computer resource managers to assist you in defragmenting your hard drive.

1.2 INSTALLING PERFORMANCE ANALYZER

The purpose of this section is to provide instructions for installing the Performance Analyzer software and optimizing its operation on your PC.

Installation Options

The PA installation routine allows users to perform three types of installations: New Install, Upgrade, and Reinstall. The installations options are discussed below:

New Install - This option will create a PA directory and install the files required to run PA along with a sample database. You should select this if you have never installed PA on your machine and want to review a sample contract.

Upgrade - This option should be used if a PA directory exists but does not contain PA 4.0 files. This option replaces all files in the PA directory, including files in the MOH-2 (sample contract subdirectory) and DRIVERS (the subdirectory containing device drivers). This option automatically converts all PA 3.2 data files to PA 4.0 format.

Reinstall - This option should be used if a PA directory exists and contains PA 4.0 files. This option replaces all files except the PA 4.0 configuration files in the MISC2 subdirectory. The configuration files contain information about your setup (e.g., printer selection).

<p>NOTE: If the Upgrade option is selected the system automatically performs the conversion of 3.2 data to 4.0 format. Follow the screen prompts to completion of this process.</p>
--

Each of the install options also provides users the ability to install the plotter and CARS utilities during PA installation. However, users may install either of these utility options independently of the PA software installation. The utility options are discussed below. (See *Installing the PA Utilities* for installation instructions).

Install HPGL Plotting Utility - This option will install the HPGL Plotting Utility program onto your hard drive. You would typically install this option if your computer is connected to a plotter. See Appendix B for more information.

Install PA to CARS Utility - This option will install a utility to export data to the Consolidated Acquisition Reporting System (CARS). See Section 3.7 for more information.

Installing the PA Software

The installation program for Performance Analyzer is located on diskette #1. The install process will automatically create directories and copy the necessary files to the selected hard drive. PA must be run from the directory to which it was installed (e.g., C:\PA) and stores all contract files in subdirectories below this (e.g., C:\PA\MOH-2).

To install the Performance Analyzer, insert PA diskette #1 into your disk drive. Refer to the following usage examples to run the PA installation program. (Note: Pressing the Enter key is designated as: **Enter**).

For example, if your source drive is B and your target drive is C, type the following (shown in italics) from the DOS prompt:

1. *B: Enter* (to move to the B drive)
2. *Install Enter* (to begin the install)

The dialog box in Figure 1-1 will be displayed once you start the installation process. Use the **Tab** key to move between the sections of the dialog box.

Install From: Enter/Edit the drive from which you are installing.

Install To: Enter/Edit to drive and directory to which PA will be installed. (The installation process will create the directory if needed).

Installation Selection: Use the **Up/Down Arrow** keys to select the appropriate type of installation. (e.g., Upgrade to PA 4.0). Use the **Space Bar** to select an installation option. A "•" will appear to indicate that an option has been selected. You may only select one option.

Optional Items: Use the **Up/Down Arrow** Keys to select optional items. Press **Enter** to select the item. You may select more than one item. An "X" will appear to indicate that an option has been selected.

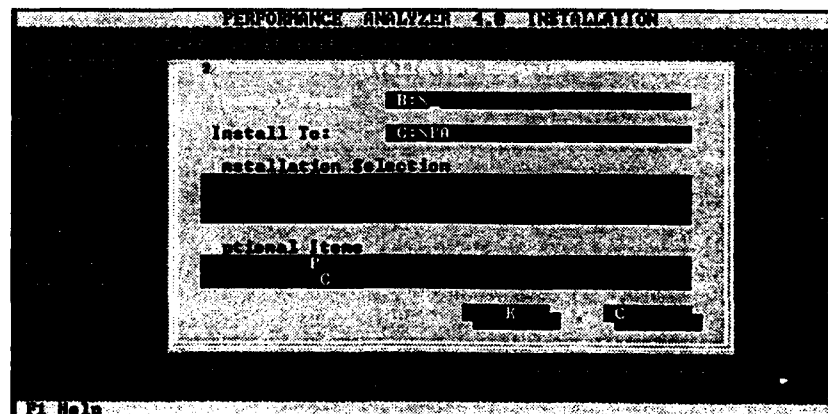


Figure 1-1

must be given Read, Write/Create privileges and assigned a password. The password feature of PA works the same on a stand-alone PC or a LAN. Refer to *5.2 Supervisor Utilities/Security* for details on assigning access levels.

The key issues to installing and running PA on a LAN are memory and setting LAN files specifications. LAN operation utilizes a portion of available system memory. The remaining available memory may not be adequate for PA. Check with your system administrator for details on your system configuration. LAN file specifications are specific to the type of LAN on which PA is installed.

The following helpful hints are provided for use in installing and running PA on a LAN.

Helpful Hints:

- Upon installing PA, the system creates some hidden PA files. If you are installing PA to a LAN with the intention of then copying the software from the LAN drive to workstations, the hidden files will not be copied. In order to do so, use a copy command, such as NCOPY, that will capture hidden files. Reference your LAN software manuals for specific command name and usage.
- The DOS command **SHARE** allows files to be shared. It is often used when computers are part of a network. The command usually resides in the CONFIG.SYS file and is set to ON. However, running this command while running PA will cause system errors. You must set this to OFF in order to run PA on a LAN.

Starting Performance Analyzer

Use the following commands to start the performance Analyzer software from the DOS prompt.

1. Go to the subdirectory where PA is installed (e.g. "CDPA").
2. Start the program by typing "PA" and pressing the **Enter** key.

A screen will be displayed indicating the version number, and then the PA program will be utilized. This process may take up to 30 seconds - depending upon the type of computer that you are using.

When you have selected all of the features you want to install, select **OK** and follow the screen prompts to the completion of the installation process. After installing the software, take a few minutes to "setup" your system. Setup is a one-time process that allows users to customize the software to their environment. It involves selecting and defining options in the system such as supervisor, users, access rights, screen colors, printer and plotter setup, and modem setup. Refer to *Chapter 5. Maintenance* for details on using these options.

Installing the PA Utilities (Plotter and CARS)

The PA Installation program allows you to install the plotter and CARS utility options independently of the PA software installation.

NOTE: The utility Installation program does NOT create the directories for you. You must verify that the directory exists or create the directory prior to starting the utility installation program.

To install the PA Utilities, insert the PA diskette #1 into your disk drive. Use the "Util" parameter after the install command to activate the utility installation program. Refer to the following example.

For example, if your source drive is B and your target drive is C, type the following (shown in *italics*) from the DOS prompt:

1. B: **Enter** (to move to the B drive)
2. Install Util **Enter** (to begin the install)

A dialog box similar to Figure 1-1 will be displayed. The difference in this dialog box is that it does not display options for installing PA, only for installing the Utilities.

Install From: Enter/Edit the drive from which you are installing.

Install To: Enter/Edit the drive and directory to which the utility will be installed. The directory must already exist!!

When you have selected all of the features you want to install, select **OK** and follow the screen prompts to the completion of the installation process.

Installing PA on a LAN

PA v4.0 is NOT a true multi-user network application. It does not provide for record locking and for multiple users accessing the same data at one time. However, PA can be installed and can run successfully on a LAN in order to allow users to share resources (e.g., printers, PA data, etc.). Installation of the PA software files on a LAN is the same as the installation of a single user system, with the exception of security privileges. All users

1.3 A FIRST LOOK AROUND

This section provides an overview of screen terminology and gives instructions on how to move in the Performance Analyzer software.

Screen Terminology

The Performance Analyzer user interface is patterned after the graphical user interface (GUI) used by programs such as Microsoft Windows. Because every PA user will not have access to a mouse and graphical display hardware, which GUI's require, PA v4.0 was developed as a character-based system. This means that the graphics are simple. However, users with a mouse may use the mouse to select menus and operate the software. Many people find that the combined use of the mouse and keyboard commands maximizes efficiency. There are several new concepts and terms that you should be familiar with before beginning. Figure 1-2 shows a sample screen, the Contracts Menu along with one of its cascading menus. Let's take a moment to review the screen terminology used in PA v4.0.

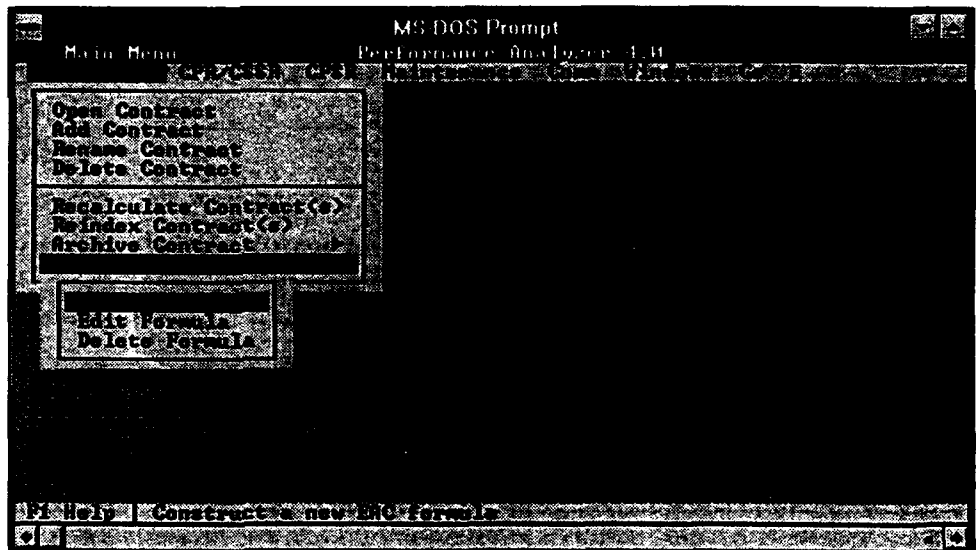


Figure 1-2

The **title bar** initially displays the version number of the PA. It also displays the current menu name. Once a contract has been opened, the screen title bar will display the current name and current system date for that contract.

The **Menu Bar** contains the primary system actions. It is always located at the top of the screen below the title bar. In this example, the menu bar happens to be the Main Menu. The **menu bar** is the primary means of accessing all of the menu options in PA. The menu bar is always visible

unless you are viewing a graph on the screen. When accessing a **pull-down** menu, some menu items may have a triangle next to it; when you choose this menu option, a **cascading menu** appears, listing additional menu options.

Pull-Down menus enable you to view the sublevel menu choices for the item highlighted in the action bar. This screen shows the pull-down menu for the Contracts option on the Main Menu.

Cascading Pull-Down Menus contain a second level of choices for the item selected in the pull-down menu. This screen shows the cascading pull-down menu for the Custom EAC Formulas option under the Contracts pull-down menu.

Scroll bars (not shown) are horizontal or vertical bars that are adjacent to the borders of a window. Scroll bars are meant to be used with a mouse to scroll the contents of the window. Click the **arrow** at either end to scroll one line at a time. Press down continuously on the mouse button to scroll continuously. You can click the shaded bar to either side of the scroll box to scroll a page at a time. You can also drag the scroll box to any location on the bar to quickly move to a spot in the window relative to the position of the scroll box. To drag the scroll box, point to the box with the mouse and holding down the mouse button, drag the button to the desired location.

The **status line** appears at the bottom of the screen. It will identify a keyboard keystroke short cut or it will display a one line message for a menu item. In this example, the status line provides help text (e.g., "Construct a new EAC formula") about the highlighted option.

The **window area** will display all input and output screens. When using PA, you have the option of having a number of windows open at the same time. This selection explains how to move and resize windows and scroll through the contents in the window.

PA presents two types of input formats: windows and dialog boxes. Windows and dialog boxes are very similar in appearance and their common capabilities are invoked in the same manner. Windows have the following capabilities:

- More than one window can be open
- Windows can be resized
- Windows can be moved to different locations on the screen
- Windows provide a zoom capability
- Windows contain a close button

Dialog boxes typically request information about a task you are performing or supply information that you may need. Dialog boxes have the following capabilities:

- Dialog boxes can be moved to different locations on the screen
- Dialog boxes contain a close button

One of the easiest methods to determine if the input screen is a window or a dialog box is to examine the lower right hand corner of the box. If the right hand corner of the box contains a single line border, then you are looking at a window. The single line border in the right hand corner of the box is the window resize handle (i.e., indicator).

The PA Menu System

There are four principle menu bars in PA, which offer a series of pull-down menu options (see Figure 1-3). Each menu bar is discussed in succeeding sections of the manual.

- Main menu bar
- Analysis menu bar
- Executive Information System (EIS) menu bar
- PMR menu bar

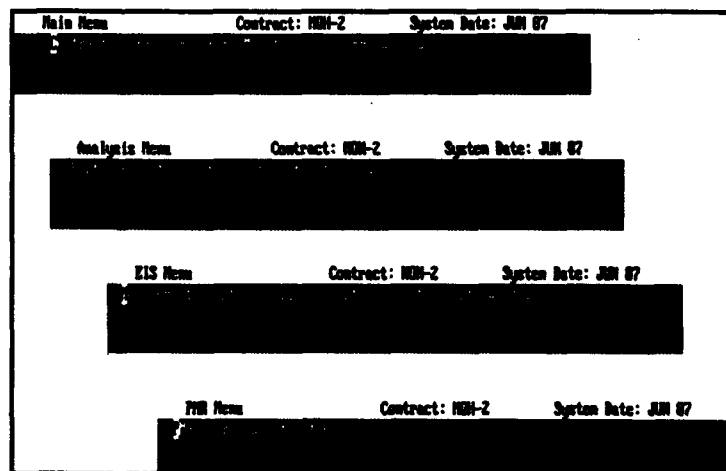


Figure 1-3

The menu bars are system-level (global) menus that span all contracts. The menu names appear in the menu bar displayed across the top of the screen. Each menu bar has a "Go" option. The Go pull-down menu allows you to move between the four menu bars, in addition to allowing you to go (e.g., shell) to DOS temporarily or to exit out of PA.

Each menu option will have one letter highlighted (for monochrome monitors), or displayed in a color that is different from the rest of the word (for color monitors). The highlighted letter is a quick key feature. Press the key of the highlighted letter to make a menu selection from the keyboard. PA commands and sub-menus are accessed via the pull-down menus. Within each pull-down menu option there may be a triangle character next to an item. This character indicates that there is a sub-menu available for this item. Some command names will at various times appear dimmed. This indicates that the command or sub-menu is not applicable to the current situation. Context-sensitive help is available throughout the PA by pressing the F1 key.

Choosing Menu Options Keyboard vs. Mouse

If you have access to a mouse, you may use your mouse in combination with the keyboard. Main menu options, submenu options, and dialog boxes can be accessed and executed through the use of your mouse. By pointing to an object on your screen and clicking the left mouse button, you select the object underneath the pointer.

Mouse Operations:

There are two ways to choose menu options with a mouse.

- (1) Click on the desired pull-down menu title to display the menu and click on the desired menu option.
- (2) Click on the desired pull-down menu title to display the menu and drag straight from the pull-down menu title down to the menu option. Release the mouse button on the option that you want.

To enter data to dialog boxes with a mouse, you must position the cursor at the beginning of the data cell and click the left mouse button to begin data entry/edit. You must double click the mouse to overwrite an entire number. A single click can be used to change one digit in a multi digit number.

Keyboard Operation:

Each menu option will have one letter, highlighted (for monochrome monitors) or displayed in colors, that is different from the rest of the word (for color monitors). The highlighted letter is a quick key feature.

- (1) Press the **Alt** key to activate the menu bar (i.e., view and select menu options).
- (2) You then have one of two options. You can press the letter on the keyboard of the highlighted letter in the menu bar to make a menu selection. For example, from the Main menu bar, press the **M** key to move to and display the Maintenance pull-down menu. Alternatively, use the **Arrow** keys to select the pull-down menu that you want to display. Then press the

Enter key. These two selection techniques apply to menu bar options as well as pull-down menu options.

Table 1-1 provides a list of keyboard and function keys available in PA.

<u>KEY</u>	<u>ACTION</u>
F1	Help
F2	System Date - Change the default date
F3	Select Forecast
F4	Tile - Causes windows to overlap so that each title bar is visible
Ctrl-F4	Cascade - Arrange windows in smaller sizes to fit next to each other
F5	Zoom - Maximizes or Minimizes the size of the window
Ctrl-F5	Size/Move - Changes the size of the window or moves the window
F6	Next - Switch between open windows
F7	Print - Prints selected report or graph
Shift-F7	Print to File - Print a report to a designated file
F8	EAC Memo - Create/Edit an EAC memo
F9	ICA Memo - Create/Edit an ICA memo
F10	Moves the cursor to the menu bar
Insert	Inserts elements or activates the insert mode for text
Del	Deletes currently selected element or character
PgUp	Moves cursor up one full page or window
PgDn	Moves cursor down one full page or window
Home	Moves to top of report, tree structure, Menu, or beginning of input field
End	Moves to bottom of report or end of input field
Escape	Moves to previous screen, closes a window, or aborts a print job
Left Arrow	Moves left one character or element in the tree structure
Up Arrow	Move back one field or up one element in the tree structure
Down Arrow	Move forward one field or down one element in the tree structure
Return/Enter	Selects the highlighted option or accepts value in field
Tab	Moves to next field in dialog box or toggle between the WBS/Functional Tree
Shift+Tab	Moves to previous field in dialog box
Alt-Letter	Select the highlighted letter of a menu option to invoke that option
Alt-X	Quit - Permanently exit PA and return to the DOS prompt

Table 1-1 Keyboard and Function Keys

1.4 MANAGING YOUR WINDOWS

The PA provides you with a number of features for managing your windows, such as: sizing, zooming in and out, and positioning windows on your screen. These window functions are all accessed by selecting the **Windows** menu bar option. This option appears on all four of the major PA menu bars and on a number of other menu bars throughout PA. Selecting the **Windows** options will display the Windows pull-down menu (Figure 1-4). Usage of these features is similar to other Windows applications, never the less, the purpose of each option is explained below.

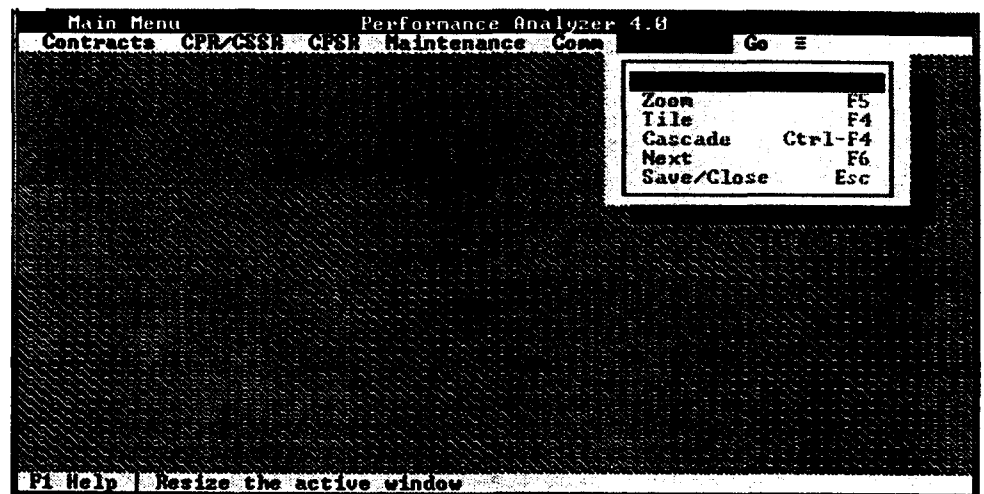


Figure 1-4

Resizing a Window (Ctrl + F5)

There are times when you will find it convenient to change the size of a window. This is very useful when you need to compare information that appears in two or more windows. If you are using a mouse:

- Select the window that you want to resize
- Click on the lower right hand corner of the window (the double lined border will change to a single line)
- Drag the corner until the window is the size that you want
- Release the mouse button

If you are using the keyboard:

- Press **Alt+W** and select the **Size/Move** menu option (or press **Ctrl+F5**)
- Hold down the **Shift** key and use the **Arrow** keys to resize the window
- Press the **Enter** key

You can **move** a window/dialog box to any location on the screen. If you are using a mouse:

- Click on the title bar
- Drag the window/dialog box to the new location on the screen

If you are using the keyboard:

- Press **Alt+W** and select the **Size/Move** menu option (or press **Ctrl+F5**)

Use the **Arrow** keys to move the windows/dialog box to the new location on the screen:

- Press the **Enter** key

Zoom (F5)

The **Zoom** box of the window appears in the upper right hand corner. If the icon in the corner is an up arrow (↑), you can click the arrow to enlarge the window to the largest size possible. If the icon is a double headed arrow (↕), the window is already at its maximum size. In that case, clicking it returns the window to its previous size.

If you are using the keyboard, press **Alt+W** and select **Zoom** menu option (or press **F5**).

Tile (F4)

The **Tile** menu option will rearrange all of the open windows so that they are visible on your screen. The tile command arranges the open windows in smaller sizes to fit next to each other on the screen.

To arrange the windows using a mouse:

- Click on the **Windows** pull-down menu option
- Click on (or drag down to) the **Tile** menu option

To arrange the windows using the keyboard:

- Press **Alt+W** and select the **Tile** menu option (or press **F4**)

Cascade (Ctrl + F4)

The **Cascade** menu option will rearrange all of the windows so that they are visible on your screen. This command causes the open windows to overlap so that each title bar is visible.

To arrange the windows using a mouse:

- Click on the **Windows** pull-down menu option
- Click on (or drag down to) the **Cascade** menu option

To arrange the windows using the keyboard:

- Press **Alt+W** and select the **Cascade** menu option (or press **Ctrl+F4**)

Next (F6)

PA provides the capability to have more than one window open at a time. The **Next** feature lets you switch between open windows.

Save/Close (Esc)

The **Close** box of a window/dialog box is the small box in the upper left hand corner. If you are using a mouse, click on this box to close the window/dialog box. If you are using the keyboard, press **Esc** to close the window/dialog box.

Help Key (F1)

Screen-specific hot keys also exist. Use the **F1** Help key for a discussion of the hot keys available and their purpose for any screen.

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Chapter 2: CONTRACTS MENU

2.1 CONTRACTS

The Contracts pull-down menu (Figure 2-1) provides access to the contracts that you have entered in PA. It also allows the addition of new contracts and provides utilities that effect multiple contracts. Each Contracts pull-down menu option is discussed in the following sections.

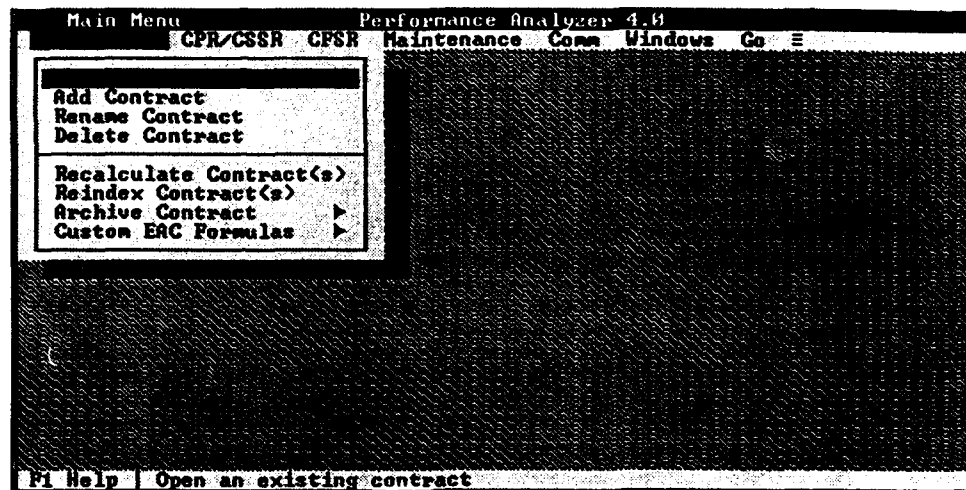


Figure 2-1

Open Contract

This option allows you to select an existing contract that has been loaded into the PA database. The menu options that are not available until a contract is opened will not have a highlighted letter (i.e., quick key).

Note: You must open a contract before you can access certain options from the CPR/CSSR and CFSR menu options, the Analysis menu bar, and other options.

When you select **Open Contract**, a pop-up window will appear listing your contracts (Figure 2-2). If passwords are in use and you have not been granted access to a contract, the contract will not be displayed in the pop-up window. Use the **Arrow** keys or mouse to highlight a contract, and then press the **Enter** key (or double click the left button of the mouse) to select it. The name of the selected contract will be displayed at the top of your screen.

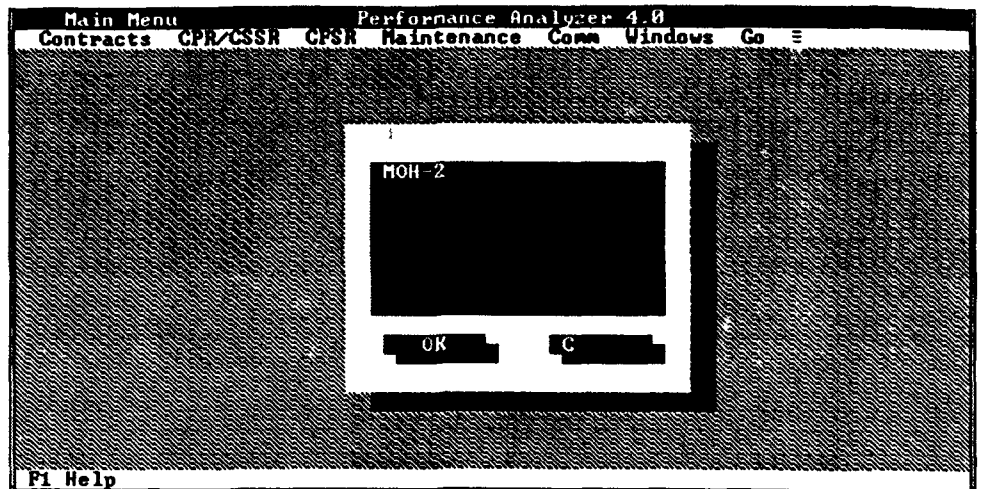


Figure 2-2

The sample contract "MOH-2" has been provided to orient you with the capabilities of the system. Use the **Arrow** keys to highlight the MOH-2 contract, and then press the **Enter** key to view the information relating to this contract. Delete this contract when you are finished with the sample data. If you are reinstalling PA, the sample contract MOH-2 will be updated as part of the reinstallation.

To open another contract while one is already open simply select the new contract to be opened. PA will automatically close the first contract.

Add Contract

This option allows you to add a new contract to your database. Selecting **Add Contract** will display a pop-up window where you can enter a name for your contract. You may enter up to 15 characters to identify the contract. The name you enter will be used on reports, graphs, and the PMR Charts. Use a name that management will recognize.

This process automatically creates a new subdirectory and required data files on your hard disk. The system uses an abbreviation of the contract name as the default directory name. You have the ability to change this to another name; however, the name should be one that readily identifies the contract. Use the **Tab** key to move to the Subdirectory Path field. Select **OK** when you are finished.

Rename Contract

This option allows you to change the name of an existing contract. When you select **Rename Contract**, a pop-up window will appear with a list of all the contracts in the system that you have access privilege to. This window is similar to the Open Contract window. Select a contract to rename and then select **OK**. A new window will appear where you can enter a new name for the selected contract (Figure 2-3). Select **OK** when you are finished. You will be prompted to confirm the contract name change. This will not change the subdirectory name for the contract

Helpful Hint:

The Rename Contract option can be used to make a copy of an existing contract in order to provide a starting point for a similar contract. (e.g., Lot 1, Lot 2 of a system). Call the PA Hotline for details and assistance in this process.

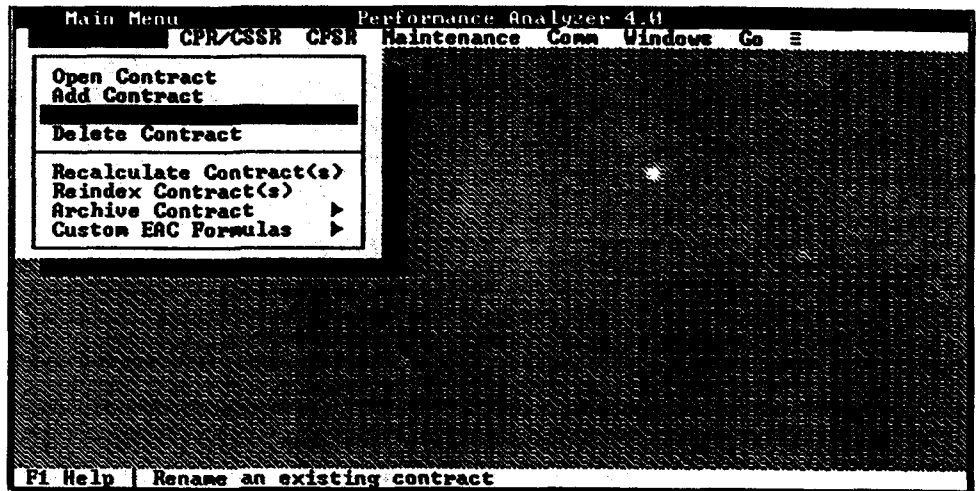


Figure 2-3

Delete Contract

This option allows you to delete all data files and the subdirectory that are associated with a contract from the system. Once this has been done, the information is *GONE FOREVER!* You need not delete a contract to delete it from PMR reporting. See Chapter 9 (PMR) for more information on this subject.

When you select **Delete Contract**, a pop-up window will appear with a list of all the contracts in the system that you have access to. Select a contract to delete and then select **OK**. You will be prompted to confirm the deletion of the selected contract.

Recalculate Contract(s)

This option allows you to calculate various forecasts-to-complete, summary elements, and to perform data validation analysis for one or more contracts. The Recalculate Contracts option defaults to the contract setup for the Sum Forecasts from Lowest Level and the Include MR in Level-1 Forecast options. These defaults may NOT be changed under this option. (The Recalculate option under the CPR/CSSR menu provides some flexibility for user selected options. See *Chapter 3.6 Recalculate* for details.) Recalculation must be performed each month after new data is entered, when corrections to prior data are made, or when changes in initial contract data are made. The Recalculate Contracts option does not recalculate CFSRs.

When you select **Recalculate Contract(s)**, a pop-up window will be displayed. From this window you can select the contract(s) that are to be

recalculated. To select a contract for recalculation, highlight the contract and press the **Enter** key or double click the mouse. The contract name will be removed from the "Available" contract scroll column and placed in the "Selected" scroll column. You may select any number of contracts to recalculate.

In addition to specifying the contracts that are to be recalculated, you can recalculate only the current month associated with the contract(s) selected or all months for those contract(s) selected.

Helpful Hint:

If you only recalculate one month of data the Six Period Summary output will only update the one month of data recalculated. This will give an inaccurate monthly comparison for the 6 period spread. Recalculate all months when a change in method or to past data is made.

Reindex Contract(s)

This option allows you to reindex all system and contract related files for one or more of your contracts. You should reindex your files if the computer loses power in the middle of the updating or recalculation process.

When you select **Reindex Contract(s)**, a pop-up window will be displayed. From this window you can select the contract(s) that are to be reindexed. To select a contract for reindexing, highlight the contract and press the **Enter** key or double click the mouse. The contract name will be removed from the Available contract scroll column and placed in the Selected scroll column. You may select any number of contracts to be reindexed. Use the **Tab** key to move between the areas/fields of this window. The Reindex Contracts option does not reindex the CFSRs.

Helpful Hint:

Computer problems such as power failures, lock up of system, etc. may cause database problems or errors. Some data error messages can be resolved by a reindex of contract data.

2.2 ARCHIVE CONTRACT

The Archive Contract option provides backup and restores functions which allow you to back up critical data. These functions are also useful if you want to transfer data from one computer to another. This function supports archiving large contracts that require multiple disks. A contract does not have to be open for you to have access to this menu option.

Helpful Hint:

Archiving contracts for a backup is recommended. If you encounter problems or if your computer drive fails, an archived backup will speed your recovery process.

Backup Contract(s)

The **Backup Contract(s)** option (Figure 2-4) allows you to archive your contracts. When you select **Backup Contract(s)**, a backup dialog box will appear. If a contract is open, its name will appear as the default for the contract to be backed up. You can get a listing of the contracts available for backup by pressing the **Enter** key in the blank contract name field. You can select a contract from this window by highlighting the contract name and pressing the **Enter** key.

After you have selected a contract, (double click on left mouse) a default file path and name will be assigned by PA. The File Path can consist of the drive identification or the drive and subdirectory (e.g., A: or O:\PABACK). You may change the default file path and file name. The Archive File Name may consist of up to eight alphanumeric characters.

The Backup to Level field allows you to backup contract data at summary levels. Selecting **All** will backup all levels of the contract. Selecting a specific level will backup that level (summarized from lower levels) and all levels above that selected level.

Custom EAC formulas associated with the selected contract are not part of the backup process. However, it is recommended that you backup your custom EACs. Refer to 2.3 *Archiving Custom EAC Formulas* for details on archiving these formulas.

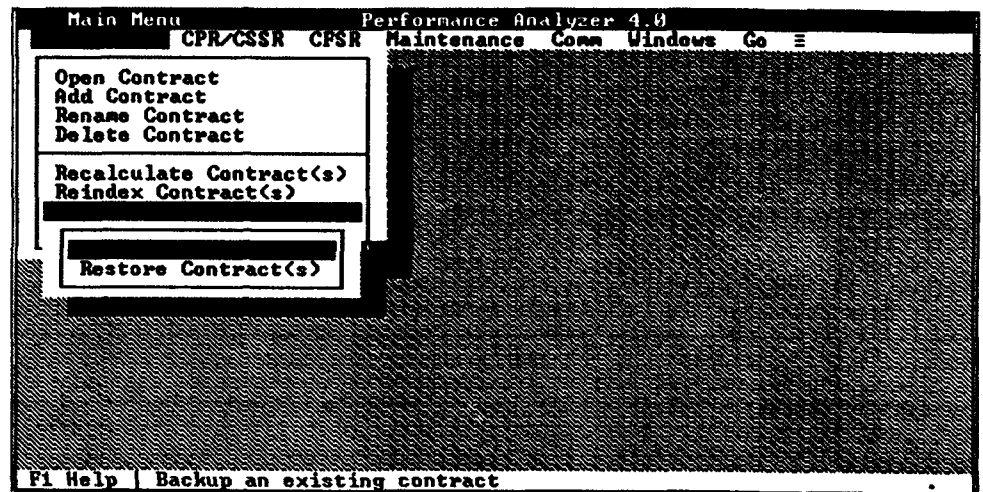


Figure 2-4

Restore Contract(s)

When you select **Restore Contract(s)**, a pop-up window with a list of files will appear for the default path that is identified at the bottom of the window. If you want to restore the files that are in a different directory, go to the Files sub-window (it is within the Restore window) and select the directory containing the files you want to restore.

Directories in the Files sub-window will be identified with a backslash (e.g., MOH-2\). The "..\" selection in the Files sub-window lets you move "up" the path. Select the contract(s) you wish to restore and then press the **Enter** key. The program will search through the specified directory to find the appropriate contract(s) to restore. If the program cannot find the contract, it will ask you if you want to create a new contract. If the program finds the contract, but the date on the backup is older than the date of your current contract, you will be asked if you want to overwrite your current contract. If duplicates of the contract are found on your computer, you will have to choose which contract you want to restore. Otherwise, the program restores the contract(s) specified in the above-mentioned prompts.

CAUTION:

Once the program overwrites the contract data in your computer, the former contract data on your computer will be lost.

Migrating PA 3.2 Contracts to PA 4.0

To migrate contracts from version 3.2 of Performance Analyzer, the user should Archive/Backup those contract(s) in version 3.2. Then use the Restore Contract(s) option in PA 4.0. These contracts will automatically be converted to the new data format. However, two data elements will not be updated. They are the Custom EAC Formula and the Target Fee %.

Custom EAC Formula: The user must manually update this field and reenter the custom formula or "load" it in using the procedures outlined in Chapter 2.3 *Archiving Custom EAC Formulas*.

Target Fee %: This data field is moved to a Target Profit field in PA 4.0. If the user wants this value to equal a percentage rather than a dollar value, the Target Profit field must be cleared and the value entered into the Target Fee % field on the Fees and Dates Information menu under the CPR/CSSR Initial Setup menu.

When converting a contract from PA version 3.2 to 4.0 that does not have an existing functional structure, PA 4.0 will add the following 5 default Level 2 elements to the functional structure: OH, UB, MR, G&A, and Cost of Money. (In PA 3.2 they were not displayed in the functional structure but were automatically included in the CPR Format 2 report.)

If the Functional Structure in PA3.2 only had one element, then the user was not using the structure (and did not need Format 2 reports). The 5 default elements were assumed in PA3.2 but have been explicitly shown in PA4.0. In addition to the 5 default Level 2 elements, PA4.0 will add a "dummy" element on the second level. This "dummy" element is necessary to hold the data from the top element of the structure in PA3.2 when there are no other second level elements to hold the data.

If a user did not maintain a functional structure in PA3.2 but is required to do so in PA4.0 he/she should delete these duplicate default level two elements and the dummy element from the functional structure and add other elements as desired.

2.3 CUSTOM EAC FORMULAS

You may define Custom EAC formulas to be used in addition to the predefined EAC formulas in the PA. A Custom EAC formula may be used with any contract. Once a custom formula has been defined, you can edit and/or delete it. The sections below discuss each of these options.

When you select **Custom EAC Formulas**, the menu shown in (Figure 2-5) will be displayed. These menu options are described in the following sections.

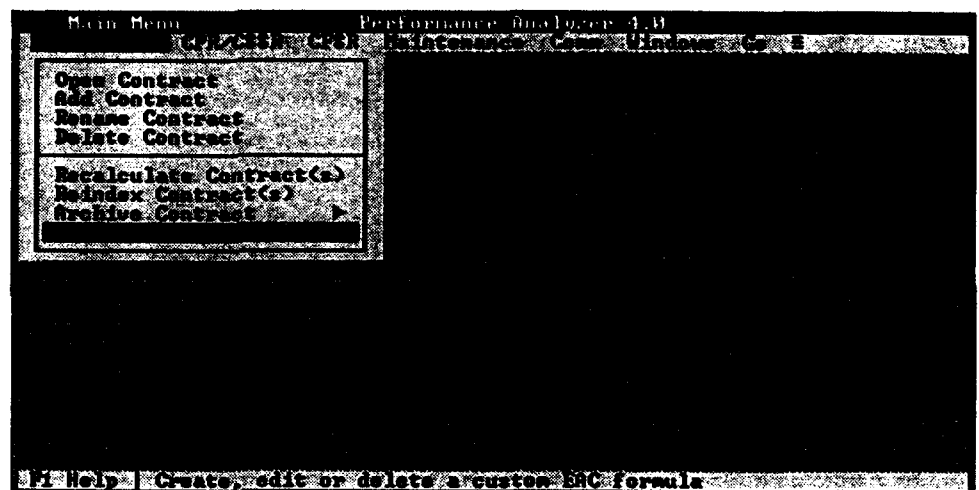


Figure 2-5

Helpful Hint:

Custom EACs are maintained in the PA directory and not the contract subdirectory. You must provide your custom EAC formula (either hardcopy or softcopy via software files) to other users when sending your data electronically. Refer to *Archiving Custom EAC Formulas* in this section for details.

Adding Custom EAC Formula

To create and use a Custom EAC formula, both of the following actions must be completed:

1. Create the Custom EAC formula.
2. Enter the EAC formula name in the General Contract Information screen.

When you select **Add Formula** from the Custom EAC Formulas menu, a window will be displayed where you must name the formula you are about to create. The name must be unique, may be up to 15 characters in length, and may contain blanks.

Once you enter a formula name and select **OK**, the Custom EAC Generator screen will be displayed. This screen is comprised of three windows containing formula data lists in the center of the screen, and an empty window in the lower portion of the screen (Figure 2-6).

The window on the left provides period names (e.g., "CP" for "Current Period" (current month's data), "P1" for "Current Period -1" (previous month's data), etc.). The window in the center contains variable names, such as BCWS_CUR, BCWP_CUR, ACWP_CUR, CPI_CUR, BCWS_CUM and so on. The **cost** variable is used to insert a numeric value (a constant) into the formula. The window on the right contains mathematical operators such as +, -, *, /, etc. Each window is further described below.

To construct a formula, select variables and operators contained in these windows. A variable or operator is selected by highlighting with the **Up/Dn Arrow**, **Home**, **End**, **Pg/Up**, or **Pg/Dn** keys and then pressing the **Enter** key. The **Delete** key may be used to undo an entry or series of entries. Use the **Tab** key to move between the windows of this screen.

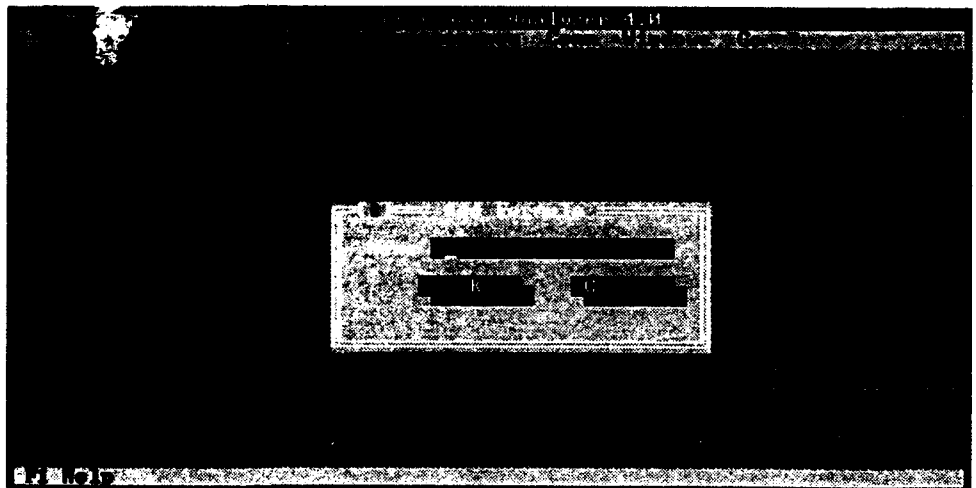


Figure 2-6

Custom EAC Variables

With the exception of BAC and LRE, all Custom EAC formulas are formed in two parts, one from each of the lists below:

BCWP_CUR	P1
BCWS_CUR	P2
ACWP_CUR	P3
CPI_CUR	P4
SPI_CUR	P5
BCWP_CUM	P6
BCWS_CUM	P7
ACWP_CUM	P8
CPI_CUM	P9
SPI_CUM	P10
(Period Independent)	P11
BAC	P12
LRE	P18
	P24

Legal variables are the 150 possible combinations of the above three columns, such as BCWP_CUM_P6, CPI_CUR_P3, and so on, plus BAC and LRE.

Custom EAC Operators

The available operators are:

+	Plus	Adds two variables
-	Minus	Subtracts two variables
*	Multiply	Multiplies two variables
/	Divide	Divides two variables
%	Percent	Multiplies expression by 100

As usual, division and multiplication are performed before addition and subtraction, unless overridden by parentheses. For example $4 + 10 / 2 = 9$, since the division is performed before the addition.

The percent operator encloses the current expression in parenthesis and multiplies it by 100. For example, if the expression in the formula window is "BCWP_CUM_CP / ACWP_CUM_CP", selecting "%" produces the expression:

$$(BCWP_CUM_CP / ACWP_CUM_CP) * 100$$

Grouping (Parenthesis) Operators

Parenthesis are used to control the order of evaluation of arithmetic expressions. For example, the operation above could be written as $(4 + 10) / 2 = 7$, where the parenthesis force evaluation of the addition operation first. Conditional groupings (e.g., If A = B, then X, else Y) are not available.

- | | |
|----|---|
| (| Open parenthesis (in variable window) |
|) | Close parenthesis |
| () | Enclose current expression in parenthesis |

As an example of the () operator, suppose the expression

ACWP_CUM_CP - ACWP_CUM_P6

is showing in the equation window. Selecting () from the operator window will produce the expression

(ACWP_CUM_CP - ACWP_CUM_P6).

The selection bar will remain in the operator window.

Custom EAC Formula Limits

The following limitations apply to Custom EAC formulas:

1. A formula can not be more than 254 characters long.
2. Parenthetical expressions cannot be nested more than 15 levels deep.
3. It is the user's responsibility to insure that a formula is meaningful for a given contract and set of data.

The formula generator cannot verify, at the time the formula is entered, that all the data necessary to evaluate an expression will be present when the calculation is subsequently done. If data is missing when the formula is evaluated, "N/A" or "0" will be displayed in the Six Period Summary report and EAC graph. "N/A" will also be displayed if a formula results in an attempt to divide by zero.

Once a Custom EAC formula has been created and its name entered in the Contract Set-up screen, the EAC resulting from it will be shown when a Six Period Report is viewed or printed. The Custom EAC result will be shown as the last EAC in the list.

EAC Formula Considerations

When generating a Custom EAC formula you **must** consider the impact of the calculation on UB and MR. These two elements do **not** have monthly performance data (i.e., ACWP=0, BCWP=0, and BCWS=0). Since these elements do not have performance measurement data (e.g., BCWS, BCWP, and ACWP) this data is obtained from Level-1 of the contract for forecasting UB and MR at completion.

For example, if Level-1 CUM CPI = .9 and BAC for MR = 100, the MR EAC would be $100/.9 = 111$. Using Level-1 performance data causes two problems. First, we do not want to add Level-1 CUM ACWP (ACWP_CUM_CP) to the estimate to complete calculation (i.e., Estimate to complete + CUM ACWP = Estimate at complete). Second, we do not want to calculate the work remaining in MR and UB by subtracting Level-1 CUM BCWP from the BAC of MR or UB. The following two rules apply when building a formula so that Custom EAC formulas work with MR and UB elements.

1. The last portion of the formula must be "+ ACWP_CUM_CP". This adds the actual costs-to-date to the estimate to complete portion of the formula. We ignore this part of the formula when calculating UB and MR forecasts.
2. Work remaining must be calculated as "BAC-BCWP_CUM_CP". PA will substitute the BAC for the work remaining calculation for UB and MR.

A Simple Example

To construct a Cumulative CPI forecast based on the current period data, the following operations would be performed:

Select **BAC** from the center window. Select the - (minus) operator. Select **BCWP_CUM** from the center window. The selection bar (cursor) will move to the left window. Select **CP**. The variable "BAC - BCWP_CUM_CP" will be displayed in the window at the bottom of the screen, and the selection bar will move to the operator window on the right. Select **()** (double parentheses). Select the / (divide-by) operator. Select **CPI_CUM** from the center window. Select **CP** from the left window. Select **()**. Select the + (plus) operator. Select **ACWP_CUM** from the center window. Select **CP** from the left window.

The formula window will show the completed equation:
 $((BAC - BCWP_CUM_CP) / CPI_CUM_CP) + ACWP_CUM_CP$.

Select OK to save the formula and close the dialog box.

Selecting a Custom EAC Formula for the Contract

PA allows you to select which Custom EAC formula to use in calculations. You may only select one Custom EAC formula at a time for the open contract. However, you may change your selection and perform calculations again as often as you wish. The steps to select a Custom EAC are outlined below:

- 1 Choose the **Open Contract** menu item from the Contracts menu bar, then select the contract with which the Custom EAC formula is to be used.
- 2 From the **CPR/CSSR** pull-down menu, select **Initial Setup** and then select the **General Contract Information** submenu option.

The General Contract Information screen will be displayed. Use the **Tab** key (or mouse) to move to the Custom EAC entry block. Enter the name of the Custom EAC formula. Alternatively, press the **Enter** key to select from a list of Custom EAC formula names. When a formula name has been entered, select the **OK** button to save the information.

<p>NOTE: Selecting NONE from the Custom EAC list will remove the Custom EAC line from the Six Period Report. This is helpful for users who do not have a Custom EAC. It keeps the system from printing a blank line on the Six Period Report.</p>

Finally, perform a recalculation to generate valid output from the Custom EAC formula. The calculated values of the Custom EAC formula will be displayed at the bottom of 6 Period Summary chart, in the EAC graph, and can also be accessed from the All EAC screen in the same manner as the predefined EAC formulas. User should verify that the results are as expected. If they are not, the formula should be checked for accuracy and retested.

Editing a Custom EAC Formula

When **Edit Formula** is selected, a window will be displayed listing the existing Custom EAC formulas. Select the formula to edit from the displayed directory window and then select **OK**. The Custom EAC Generator screen will display the selected formula in the equation window in the lower part of the screen.

Normal editing keys such as the **Arrow**, **Backspace**, **Delete**, and **Insert/Overstrike** toggle keys are available. Numbers may be entered directly into the equation; however, variables and operators are limited to those appearing in the window menus.

Selecting **OK** ends the editing session. When **OK** is selected, the formula is checked for syntactical correctness. Syntax violations include missing or unrecognized variable names, unmatched parenthesis, unrecognized

operators, and so on. If an error is reported, the equation must either be re-edited or abandoned.

Delete a Custom EAC Formula

Select **Delete Formula** and a window will appear listing the existing Custom EAC formulas. Select the formula to be deleted and then select **OK**. You will be prompted to confirm the deletion.

NOTE: Upon recalculation of the associated period, contracts containing reference to this formula in the SPO/ICA EAC Inputs will result in EACs of zero or other possibilities depending on the rules applicable to the situation. Reference *Appendix A. Formulas*.

Archiving Custom EAC Formulas

Custom EAC formulas are maintained in the PA directory and not the contract subdirectory. To archive these formulas, copy the files that contain these formulas to a diskette for safekeeping or for sharing with other PA users working with your contract data. The files are:

FORMULA.OMD
FORMULA.OMX

To archive these files, you must first exit from PA to DOS. From the DOS prompt use the DOS **COPY** command to copy the files to the destination diskette or drive. For example, assuming you are in the PA directory where these files reside and want to copy them to a floppy disk in the B drive you would type:

COPY FORMULA.* B:

The "*" is a DOS wildcard. It allows you to copy both the OMD and OMX files in one command. Refer to your DOS manual for more details on copying files.

To restore or "load" these files to your PA directory copy the files into the directory using the DOS copy command. For example, assuming you are in the PA directory and the files were on a diskette in the B drive you would type: **COPY B:FORMULA.***

This will copy the formula files into your PA directory.

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Chapter 3: CPR/CSSR

3.0 CPR/CSSR

The Cost Performance Report (CPR)/Cost Schedule Status Report (CSSR) pull-down menu options are accessible after a contract has been opened (Figure 3-1). The contract and system date will be displayed in the screen title bar. The CPR/CSSR menu provides access to all functions required to perform initial set-up, monthly data input, recalculation, and utilities for a selected contract. Analysis for a selected contract is selected via the **Go** pull-down menu. Each menu option is discussed in the following sections.

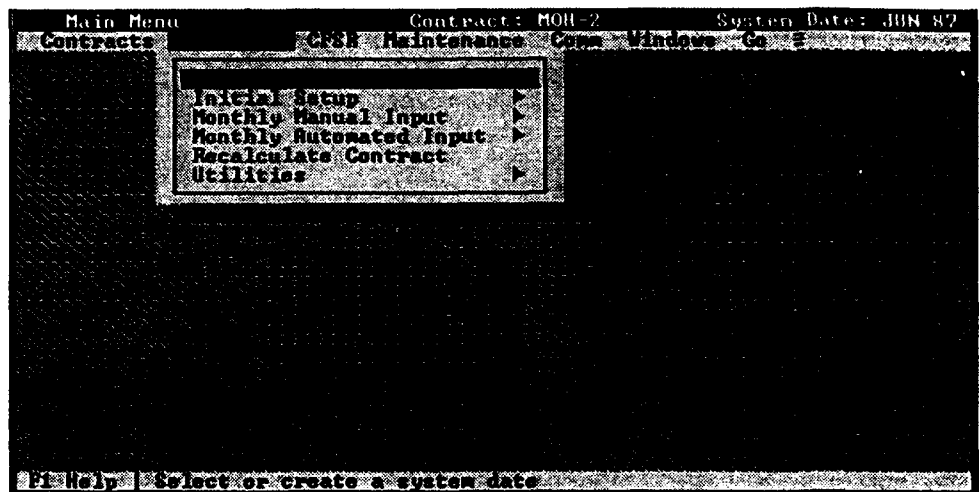


Figure 3-1

3.1 SYSTEM DATE

The system date is the date for which you will enter or analyze CPR/CSSR data for the selected contract. It determines the month of data to be entered, edited, or analyzed. The system date always defaults to the latest month of recalculated data. However, you may enter, change, or analyze data for a prior month by changing the system date.

Changing the System Date

Change the system date to the appropriate month and year by highlighting the month and year desired in the pop-up window as displayed in (Figure 3-2) and pressing the **Enter** key. Note that only the last 36 months of data are displayed in the pop-up window and that the **Down Arrow** or **Page Down** keys can be used to access additional months.

To create a new month of data, select **New** from the pop-up window. Then type in a month and year (e.g., JUN 87).

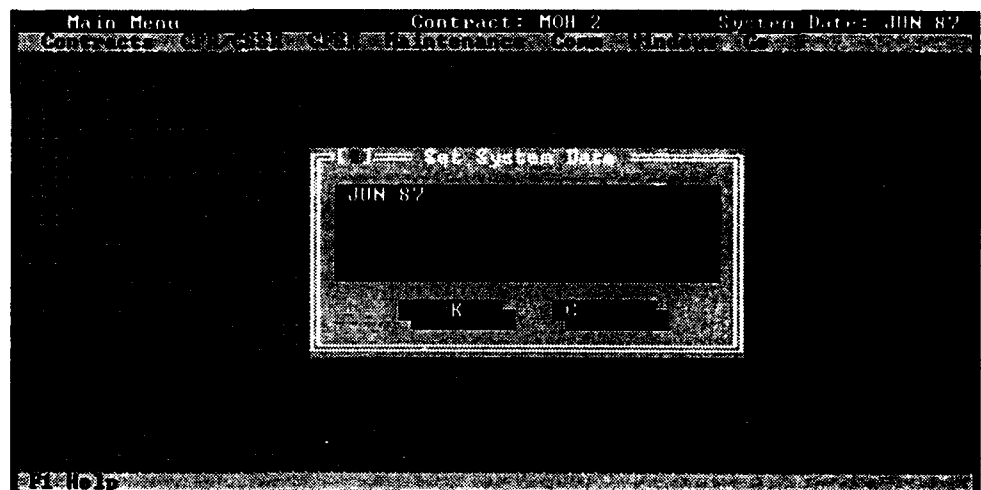


Figure 3-2

3.2 INITIAL SETUP

The Initial Setup menu provides you with the capability to enter and update initial contract information, WBS Elements, Functional Elements, and contractual data required for graphs and reports. This contractual data consists of information concerning fee percentages, type of contract, variance reporting thresholds, etc. (Figure 3-3). Each menu option is described in the following sections.

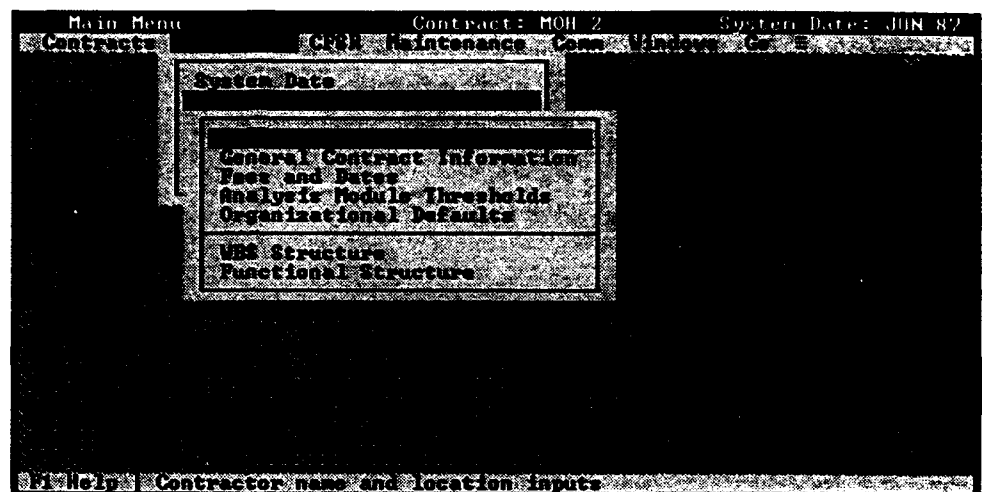


Figure 3-3

Contractor Information

When you select the **Contractor Information** option, a pop-up window appears (Figure 3-4). You can enter the contractor name, an abbreviation for the contractor's name, and up to four lines for the contractor's address. When you have completed entering the information, select the **OK** button. If you do not want the changes you have made to take effect, select the **Cancel** button.

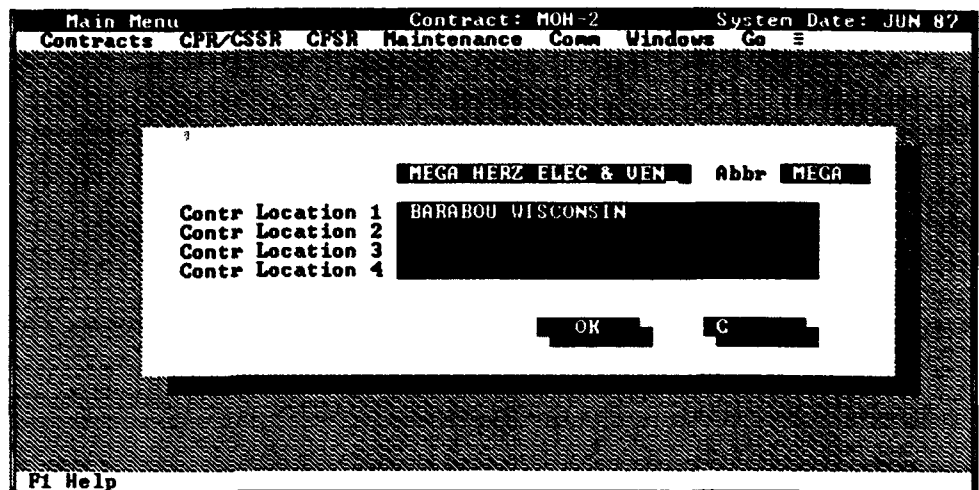


Figure 3-4

General Contract Information

Selecting the **General Contract Information** menu option, presents a dialog box that lets you enter/edit data for the contract number, contract type, negotiated cost, target price, ceiling, phase, and item quantity (Figure 3-5).

All dollar amounts throughout the program are entered in thousands with one decimal place. Contract Phase is entered as Advance Development (AD), Full Scale Development (FSD), or Production (PROD). Report types are CPR or CSSR. The valid selections for the report type, dollar units, and contract phase are made via radio buttons. Radio buttons allow one and only one selection for the given choices. The **Dollars** radio button choices, thousands or hundreds, indicate whether the decimal place will be displayed in reports.

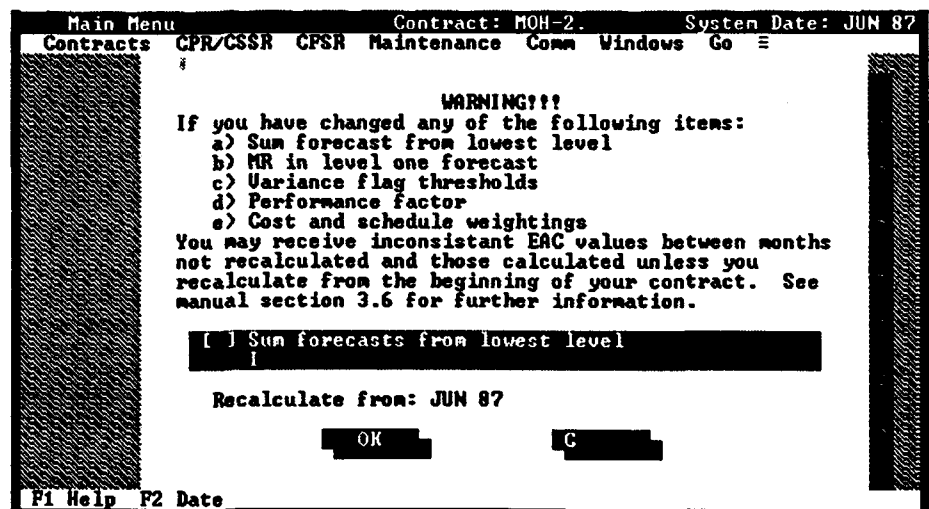


Figure 3-5

Fees and Dates

Selecting **Fees and Dates**, displays the data elements related to contractual fee amounts (e.g., minimum fee, target profit (dollars), target fee %, maximum fee, award fee) and contractual dates (Figure 3-6). This information is available from the CPR or contract. The Work Start Date is the field utilized to identify the contract start date in baseline and management graphs. Days are entered as "1", "01 ", Months are entered as "Jan ", or "January". To enter the year, enter the last two digits only (e.g., 86 = 1986).

NOTE:

In PA v4.0, Target Profit and Target Fee % are entered separately to their respective fields. Target Profit is a dollar amount. Target Fee % is a percentage.

FEES		DATES	
Target Fee %	8.0	Definition	01 SEP 86
Min Fee %	0.0	Contract Start	01 SEP 86
Max Fee %	0.0	Work Start	01 SEP 86
Contractor Share Above	12.0	Last Item Deliv	15 MAR 88
Contractor Share Below	80.0	Contract Comp	15 MAR 88
Fixed Fee	0.0	OIB Approval	NONE
Non Fee Bearing Cost	0.0		
Original Award Fee	0.0		

Figure 3-6

Analysis Module Thresholds

The Analysis Module Thresholds are used to determine which colors are shown when using the Analysis function (Figure 3-7). The Performance Analyzer will use these percentages as a comparison against Cumulative and Current Month Cost Variance (CV), Schedule Variance (SV), and Variance at Completion (VAC) percentages for each element. The color information will be displayed on the analysis screen along with arrows indicating the trend from last month. If thresholds are changed, the contract must be recalculated.

You have the option of specifying a minimum change percentage to control the tolerances that invoke the arrows by using the Change Threshold field. If the percent change from last month does not exceed the Change Threshold then a "•" will be displayed instead of an arrow. This will allow you to quickly identify the areas that have a material change since last month. If you want arrows to display trends without regard to their magnitude enter "0" in this field. The system was designed to follow the

PMR reporting thresholds that are appropriate. See Table 7-1 for a description of the colors and arrows.

Main Menu Contract: MOH-2 System Date: JUN 87
 Contracts CPR/CSSR CFSR Maintenance Comm Windows Go

Color	Threshold	Arrows	Value	Symbol
Yellow	-15	< x 1	-15	x
Green	-5	< x 1	5	
Blue	10	< x < *	10	

Change Threshold 10 x

OK C

F1 Help

Figure 3-7

Organizational Defaults

This menu option gives you the ability to specify government organizational identifiers which are typically entered as part of the initial contract information. When you select **Organizational Defaults**, a data input dialog box will appear (Figure 3-8). From this dialog box you can enter the SPO name, SPO office symbol and program name. You can also enter acronyms for the following terms (1) Program Office, (2) on-site representatives, and (3) contractor. These acronyms will be used in menus, input screens, graphs, and reports.

Main Menu Contract: MOH-2 System Date: JUN 87
 Contracts CPR/CSSR CFSR Maintenance Comm Windows Go

Program Identification		Org. Acronyms	
Program Office	MOH	Program Office	SPO
Office Symbol	SDMOH	On Site Rep	CRO
Program Name	MOH-2	Contractor	KTR

Financial	Contract Managers	Phone		
PMR OPR	MR. E. MONEY	643-1234	OK	C
	MR. B. TECH	643-3456		

F1 Help

Figure 3-8

3.3 WBS/FUNCTIONAL STRUCTURE

This section combines the description for creating/editing the Work Breakdown Structure (WBS) and Functional Structure because the process for creating/editing them is the same. These options are accessed from CPR/CSSR Initial Setup submenu.

Setting Up the WBS/Functional Structure

The process of setting up and maintaining a WBS/Functional Structure in most automated systems is a cumbersome process. PA utilizes a visual approach that simplifies the task of setting up and maintaining these structures.

The initial screen will display the total contract (Level-1) along with defaulted indirect Level-2 elements (Overhead, Cost of Money, G&A, Undistributed Budget, and Management Reserve). The WBS and Functional structures share the indirect elements. Therefore, changing the elements in one structure will change them in the other structure.

NOTE: The following discussion and data screens illustrate the process of creating and editing the WBS and Functional structures using the WBS structure as an example. However, the process is the same for the Functional structure.

Selecting **Switch** (Alt-S) from the WBS/Functional Trees menu bar will toggle between the WBS and Functional Trees. With large WBS/Functional trees this process may take several seconds.

The WBS categories are used to enter the Format 1 data. The Functional categories identified in this module will be used to enter the monthly performance data (CPR Format 2) as well as the monthly manpower data (CPR Format 4).

The cursor will be located on the top level element (highlighted or reverse video) with the contract name and a default code of 1000. Both the default contract name and default code can be changed by selecting **View** from the menu bar. See *Element Information (View)* later in this section for more information on the View menu bar option. The Overhead, Cost of Money, G&A, Undistributed Budget, and Management Reserve titles cannot be changed.

Inserting Elements (Insert)

To build the WBS/Functional tree, highlight the element that is to have lower level elements (children) and press the **Insert** key. A new box will appear for you to define the new element, with the cursor in the position to enter the WBS element code number (Figure 3-9). Enter the code number, sort number, and a description. The WBS name entered should easily identify the element to the management user. Select **OK** and the system will return to the original level.

If you add elements below an element that is at the reporting level (lowest level), you will be asked if you wish to copy the element's monthly performance data (i.e., BCWS, BCWP, ACWP, BAC, LRE) to the new element. If you answer yes to the query, PA will copy the monthly performance data to the new element.

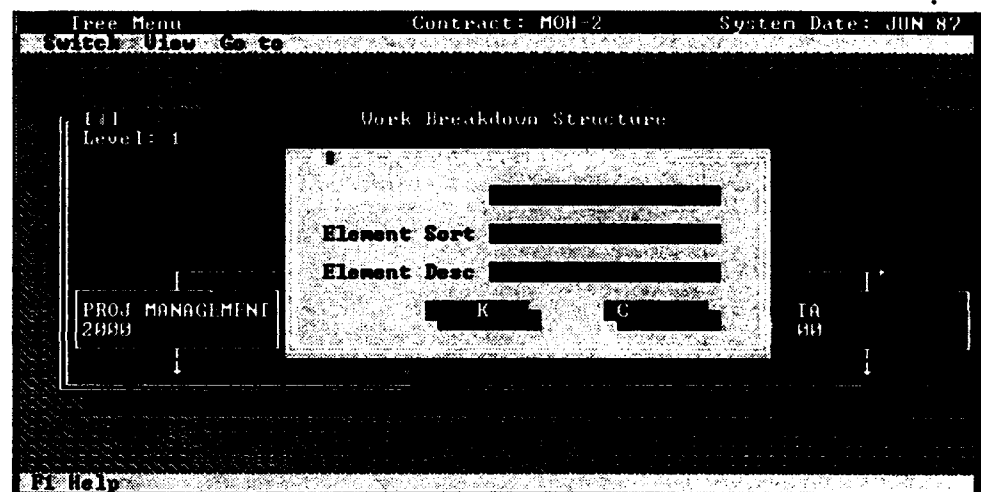


Figure 3-9

The WBS codes entered are important because they are used to identify the elements on reports/graphs. These codes do not affect the summation process, but are defaulted to the Sort field to determine the order that the elements are displayed within a level. For example, Figure 3-8 displays the WBS for the sample contract MOH-2. Element 2000 is displayed to the left of element 3000. Element 4000 is displayed to the left of element 5000, and so forth.

The value Sort field defaults to the WBS code. However, you can enter your own sequencing number if you want the tree to sort in an order different from the WBS numerical order.

Add as many Level-2 elements as required, then add the Level-3 elements below each Level-2 element. When you move to a Level-2 element, the screen will be shifted so that the Level-2 element is at the top of the screen and the new Level-3 element is at the bottom. Continue this process until the WBS is complete. The **Home** key will return you to the top of the tree. Changes can be made to the structure at any time, but be sure to run the recalculation routine following any changes.

Removing Elements (Delete)

Select the element you wish to delete by highlighting it, and press the **Delete** key. The element will disappear along with all data associated with the element. Adding the element back into the structure will not restore the data. You may delete an element that has children; however, all elements below it will also be deleted. You will be notified that there are children elements and questioned whether to proceed. If you proceed, the element you are on, all children elements, and the associated performance data will be deleted.

Element Information (View)

Background information for each WBS/Functional element can be entered by selecting **View** from the menu bar or highlighting the element and pressing the **Enter** key. Once you have selected **View**, a window will open with element information (Figure 3-10).

The screenshot shows a window titled "Element Information" with a menu bar at the top containing "Tree Menu", "Contract: MOH-2", and "System Date: JUN 82". Below the menu bar is a "Switch View Go to" button. The main area contains several input fields and labels:

- WBS:** 1488
- WBS Name:** MOH-2
- WBS Sort Field:** 1488
- Forecasting Factors:**
 - Cost Weight:** 80.0
 - Schedule Weight:** 20.0
 - Performance Factor:** 1.0
- Project Officer Name:** TROOP
- Project Office Extension:** 654
- Project Officer Office Symbol:** JDHD
- Subcontractor:** [Redacted]
- dd Marker:** [Redacted]
- isk Level:** [Redacted]
- Risk Level:** R
- N:** N
- C:** C

At the bottom of the window is a status bar with the text "F1 Help F3 Narrative F7 Copy down".

Figure 3-10

Element information includes the sort field, forecasting factors, non-add flag (used if the element is not to sum in the structure, commonly used for the G&A line item), risk level, subcontractor identification, and a narrative section where notes about the element dictionary data can be stored. The Element Sort field is automatically defaulted to the Element Code number. If the WBS does not sort as desired based upon the WBS number, edit the Element Sort field to revise the order.

Forecasting Factors are used to provide a means for tailoring the forecasting methods. For the cost and schedule parameters, the sum must equal 100. You may want to change these weights as the contract progresses. Typically, a higher weighting on schedule is used early in the contract, with a linear shifting to cost as the contract progresses; however, it is really dependent on your particular situation.

The **performance factor** is used to provide an EAC that incorporates items which may influence the work remaining that are not reflected in past performance of the given CPR data.

Such items may include the contractor's prior performance on previous contracts, known future technical problems, anticipated overhead adjustments, etc. The work remaining is multiplied by the forecasting factor and then added to the cumulative ACWP. To forecast a 10% overrun in the work remaining, input a performance factor of 1.10.

The **risk level** entry is not currently used.

Element Thresholds

Contract thresholds are used to identify WBS/Functional elements that have breached contractual reporting thresholds and should have a narrative analysis on Format 5 of the CPR. The screen where you enter thresholds for an element is the Element Thresholds screen (Figure 3-11). To access the Element Threshold screen select **Alt / Next** from the Element Information screen. Contractual reporting thresholds can be entered for four break points based on percent complete. Ensure that these coincide with the thresholds in the contract.

Tree Menu		Contract: MOH-2		System Date: JUN 82	
Switch	View	Cur Cost	Cum Cost	UAC	Percent Complete
0	100	15.0	20.0	10.0	92
1	100	15.0	20.0	10.0	15
2	100	15.0	20.0	10.0	30
3	100	15.0	20.0	10.0	30
98	100	15.0	15.0	10.0	98
1	100	15.0	15.0	10.0	10
2	100	15.0	15.0	10.0	10
3	100	15.0	15.0	10.0	10
99	100	15.0	15.0	10.0	99
1	100	15.0	15.0	10.0	10
2	100	15.0	15.0	10.0	10
3	100	15.0	15.0	10.0	10
100	100	15.0	15.0	10.0	100
1	100	15.0	15.0	10.0	10
2	100	15.0	15.0	10.0	10
3	100	15.0	15.0	10.0	10

OK P F7 Copy down

Figure 3-11

Note that the "AND/OR" entry associated with the contract thresholds. The "AND" entry simply means that both the dollar and the percent threshold must be exceeded before a flag is generated on the PM Summary Report; the "OR" entry will generate a flag if either is exceeded. If the contract or element does not have thresholds for reporting, type "NOT". The field cannot be left blank. Trying to move to the next field without making an entry in the AND/OR block will display an options window showing AND, OR, NOT. One of these must be selected or typed in. The "NOT" entry in the first range indicates that threshold reporting does not apply to this element.

Note also that the calculation for % complete is rounded up in all cases. For example, 97.1 would be evaluated as if it were 98.

The **Copy Down** function (F7) is used to copy the forecasting factors, the performance factor, and element thresholds to all children of the selected element. This can greatly reduce the time required to enter this data.

Non-Add Elements

When an element is marked as a non-add item, it and any element below it (even if marked as an add item) will not sum up the WBS or Functional Structure. Elements marked as add items below a non-add item will sum to the non-add element, but no further. For example, in Figure 3-12 elements 3020, 3021, and 3022 would not sum into element 3000 or element 1000. Indirect costs (e.g., Overhead, G&A, and Cost of Money) can be marked as add items in the WBS and non-add items in the Functional Structure.

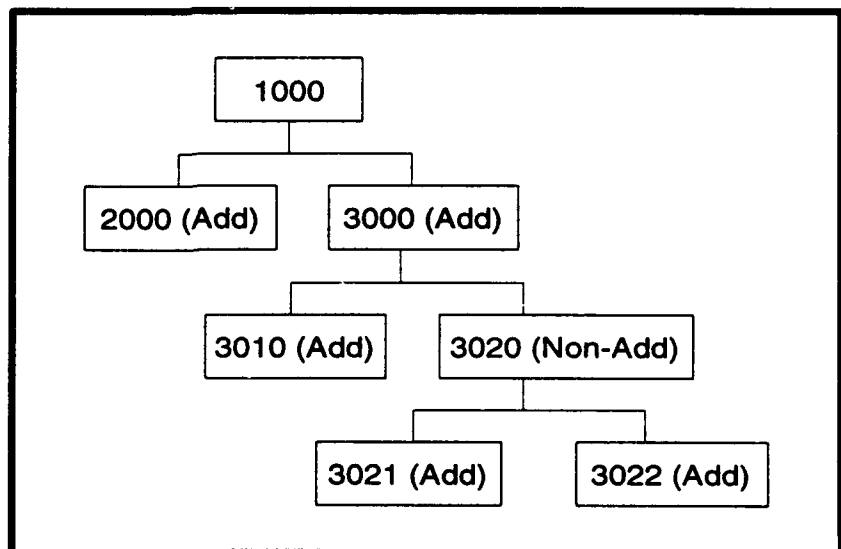


Figure 3-12

Finding Elements (Goto)

The **Goto** menu bar option (**Alt \ Goto**) will display a window with a listing of all elements sorted by the sort field code (Figure 3-13). By highlighting an element in this window and pressing the **Enter** key, you can quickly locate an element without traversing around the tree.

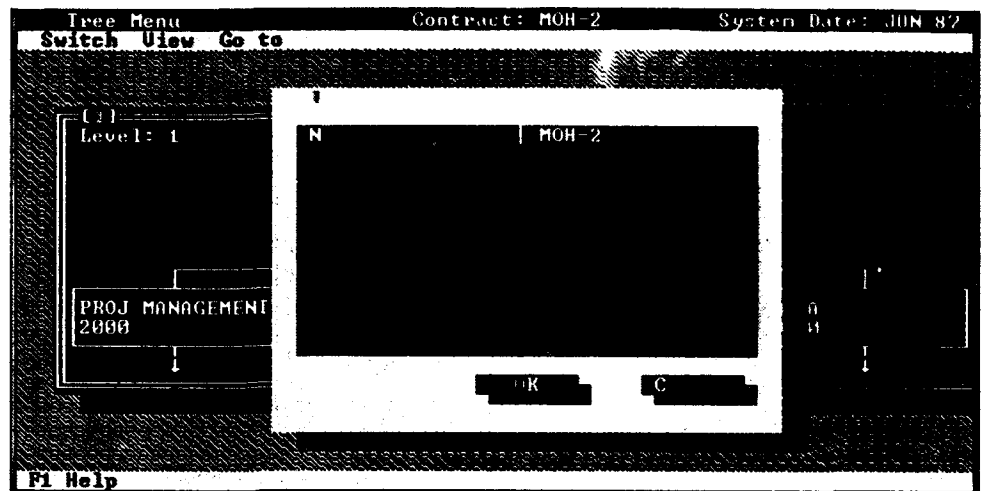


Figure 3-13

3.4 MONTHLY MANUAL INPUT

Monthly performance data is entered as cumulative data at the lowest reporting level (PA will "de-cum" or calculate the current period values and sum to determine all summary level elements). This significantly reduces the amount of data entered or transferred to the system. The manual update mode can be used to enter the monthly data or to edit prior data. The system automatically defaults to the last month of processed data. Use the **System Date** menu option from the CPR/CSSR pull-down menu to create a new month or change the system date. PA accepts numeric input as large as 99,999,999k.

A number of function keys are applicable to the various input screens that you will encounter. **F2** allows you to change the date. **F3** allows you to change elements.

The Monthly Manual Input menu provides access to contract inputs and monthly updates, as well as any reprogramming adjustments for schedule (Figure 3-14). The following sections will address each of these menu options in detail.

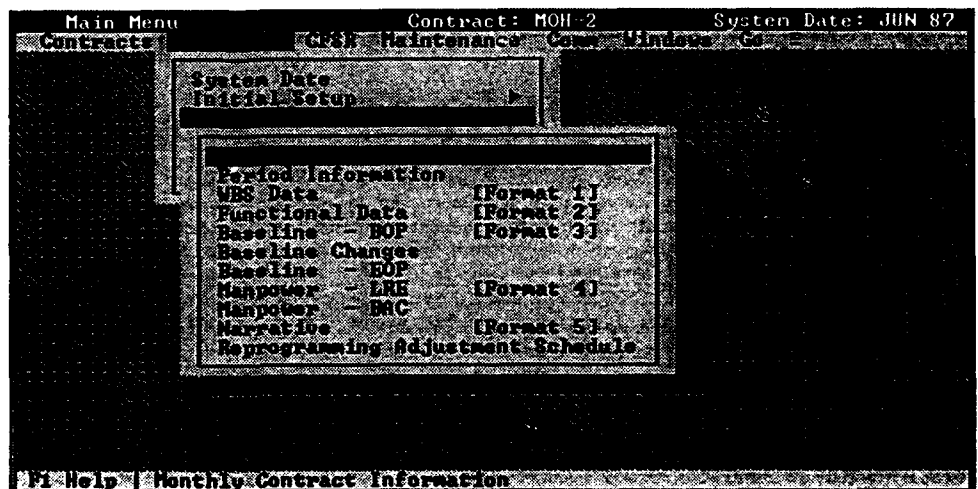


Figure 3-14

Contract Information

The screen shown in Figure 3-15 is used to update contractual data that may change on a monthly basis, such as contract target cost, estimated cost

of unpriced work, etc. Updates in this section do not change original entries nor prior month data. The Last Contract Change input is the last contract Change Order or Supplemental Agreement number applicable to the current CPR. It is an optional field. Be sure to enter the contract completion date, because it is used to update the period of performance (POP) data on charts and reports. Select **F2** to change the defaulted date.

Main Menu Contract: MOH-2 System Date: JUN 87
Contracts CPR/CSSR CPR Maintenance Comm Windows Go

CPR Header Data		Award Fee/Incentives	
Est. Authorized Unpriced	20796.2	Total Award Fee	0.0
Target Profit	0.0	Award Fee Paid	0.0
Target Fee %	0.0	Award Fee Remaining	0.0
Target Price	22459.2	Incentives	0.0
Estimated Price	22459.2	Contract Dates	
Contract Ceiling	26200.0	Report Start Date	01 JUN 87
Estimated Ceiling	26200.0	Report End Date	30 JUN 87
Negotiated Changes	1266.4	Last item Delivery	15 MAR 88
Contract Budget Base	20796.2	Contract Completion	15 MAR 88
Total Allocated Budget	20796.2	Est Completion	30 MAY 88
Last Contract Change			

Date: JUN 87 **OK** **N** **C**

F1 Help F2 Date

Figure 3-15

Selection of the **Next** button will display a screen for input of Approval Name, Title, Organization, and Submission Date (Figure 3-16). This information will be printed on the Formats 1 and 2 of the CPR.

Main Menu Contract: MOH-2 System Date: JUN 87
Contracts CPR/CSSR CPR Maintenance Comm Windows Go

Title A. Hatchett
Organization Deputy Comptroller
 Comptroller

Submission Date 15 JUL 87

Date: JUN 87 **K** **P** **C**

F1 Help F2 Date

Figure 3-16

Period Information

Selecting the **Period Information** option, displays a data input dialog box that will let you specify period information for the four specified periods in Formats 3 and 4 of the CPR (Figure 3-17). You can specify different Baseline and Manpower periods. This information will be used to generate

the Baseline and Manpower charts.

You must enter the number of months in each period and the title for each specified period. The title can be up to four characters long and acts as a label for each period (e.g., JFM means that the period covers the months January, February, and March). This is the only place within PA that this information can be specified.

Baseline Chart

The number of months in each period determines how far past the Current Period+6 data point the chart will be drawn. PA plots the cumulative dollar value at the end of each period and then connects it to the previous data point.

Manpower Chart

The number of months in each period determines how far past the Current Period+6 data point the chart will be drawn. PA plots the manpower value at the end of each period and then connects it to the previous data point. The titles will appear at the top of the chart labeling each period data point.

BASELINE		MANPOWER	
Period	Months	Period	Months
Period2	1	Period1	1
Period3	1	Period2	1
Period4	1	Period3	1
To Complete	0	Period4	0
		To Complete	0

Date: JUN 82

Figure 3-17

WBS Data

This menu option is used to update monthly WBS cumulative BCWS, BCWP, ACWP, Reprogramming Adjustment for cost, Reprogramming Adjustment for budget, BAC, and LRE for lowest level elements, Overhead, Cost of Money, Undistributed Budget, G&A, and Management Reserve. A scrollable spreadsheet-like window allows you to check the cost variance, schedule variance, and variance at completion amounts against the hard-copy CPR (Format 1) for data validation (Figures 3-18). Select the F2 key to change the system date.

The WBS Monthly Data Input window will display the WBS description in

the left column. If you press the **Space Bar**, the left column will display WBS codes instead. Press the **Space Bar** again and the WBS names will be displayed. Use the **Tab** or **Arrow** keys to move between the fields of this window. To input data, enter the desired number and press the **Enter** key.

Main Menu					
Contract: MOH-2 System Date: JUN 87					
Contracts CPR/CSSR CPR Maintenance Comm Windows Co E					
[s] WBS Monthly Data Input					
Description	BCWS	BCWP	ACWP	CU	CU
PROJ MANAGEMENT	257.6	282.6	300.0	-12.0	12.4
SYS ENGINEERING	234.6	241.0	262.4	6.4	26.4
FUNC INTEGRA	353.4	345.8	363.2	-7.6	12.4
SENSORS	392.4	360.8	371.4	-36.6	10.6
COMMUNICATIONS	910.6	707.4	838.2	203.2	130.8
AUX EQUIP	259.8	666.6	588.4	93.2	78.2
ADPE	261.2	251.0	238.4	10.2	12.6
COMP PROGRAMS	88.0	87.8	84.4	0.2	3.4
PCC	1692.8	1681.4	1722.6	-11.4	296.2
DATA DISPLAY	272.6	159.6	159.6	113.0	0.0
I & A	426.8	509.8	534.0	83.0	24.2
SPARES	133.8	135.0	142.8	1.2	2.8
ENG DATA	12.0	12.4	12.0	-6.6	4.6
MANAGEMENT DATA	79.8	79.8	93.0	0.0	13.2
TOTAL	7278.6	6850.8	7349.8	-427.8	-499.0
JUN 87					
F1 Help F2 Date Space Desc Esc Save/Close					

Figure 3-18

Functional Data

The Functional Data menu option is used to update monthly Functional cumulative BCWS, BCWP, ACWP, Reprogramming Adjustment for cost, Reprogramming Adjustment for budget, BAC, and LRE for lowest level elements. A spreadsheet-like scrollable window allows you to check the cost variance, schedule variance, and variance at completion amounts against the hard copy CPR for data validation (Figure 3-19). The data in this window fulfills Format 2 requirements.

Overhead, Cost of Money, G&A, Management Reserve, and Undistributed Budget are copied from the WBS inputs. Changing these inputs in the Functional screen will change the WBS inputs.

Use the **F2** key to change the system date. To toggle between the functional codes and functional names, press the **Space Bar**.

Main Menu		Contract: MOH-2		System Date: JUN 87	
Contracts CPR/CSSR CPSR Maintenance Comm Windows Go ≡					
[1] Functional Monthly Data Input					
Description	BCWS	BCWP	ACWP	SU	CU
PROJ MANAGEMENT	862.6	869.4	930.6	-13.2	-61.2
ENGINEERING	1240.8	1252.6	1269.2	11.8	-16.6
MANUFACTURING	3816.0	3467.6	3736.0	-348.4	-268.4
QUALITY CONTROL	627.2	638.2	745.8	-39.0	-107.6
OVERHEAD	0.0	0.0	0.0	0.0	0.0
COST OF MONEY	0.0	0.0	0.0	0.0	0.0
GEN & ADMIN	662.0	623.0	668.2	-39.0	-45.2
UNDIST BUDGET				0.0	0.0
MGT RESERVE				0.0	0.0
TOTAL	7278.6	6850.8	7349.8	427.8	479.0
JUN 87					
F1 Help F2 Date Space Desc Esc Save/Close					

Figure 3-19

Baseline - BOP

This menu option is used to enter/edit Beginning of Period BCWS Baseline data (Figure 3-20). You need to update monthly Baseline data (Format 3) at the total contract level for Beginning of Period (BOP).

The Cum to Date field is the cumulative to date BCWS, not including this month's BCWS. This month's BCWS is entered in the BCWS Current field. Enter the rest of the numbers, and select the **OK** button to save or the **Cancel** button to abort any changes.

Main Menu		Contract: MOH-2		System Date: JUN 87	
Contracts		CPR/CSSR	CPSR	Maintenance	Comm Windows Go
1					
BCWS Current	5633.2	Period 1	1321.8		
Current + 1	1645.4	Period 2	0.0		
Current + 2	1915.1	Period 3	0.0		
Current + 3	1915.2	Period 4	0.0		
Current + 4	2015.6	To Complete	0.0		
Current + 5	1914.2	Undist Budget	100.0		
Current + 6	1457.7	Total	19711.8		
Date: JUN 87		OK		C	
F1 Help F2 Date					

Figure 3-20

Baseline Changes

This menu option is used to enter/edit changes to the Performance Measurement Baseline (PMB). The dialog box shown in (Figure 3-21) allows you to enter a detailed breakout of factors that explain any differences between beginning of period and end of period baseline data. This information is printed on the CPR Format 3 report.

The screenshot displays a software interface with a 'Main Menu' at the top. The menu options are: Contracts, CPR/CSSR, CPSR, Maintenance, Comm, Windows, and Go. The 'CPR/CSSR' option is selected, opening a sub-menu. The sub-menu contains the following information:

1	
	mount
Apply MR	645.2
Total: 645.2	
Date: JUN 87	
OK	C

At the bottom of the main window, there are labels 'F1 Help' and 'F2 Date'.

Figure 3-21

Baseline - EOP

This menu option is used to enter/edit End of Period BCWS Baseline data (Figure 3-22). You need to update monthly Baseline data (Format 3) at the total contract level for End of Period (EOP). The information contained in this window will be displayed in the Baseline Graph.

The Cum to Date field is the cumulative BCWS to date for the end of this period. This includes the Cum to Date and BCWS Current month. Enter the rest of the numbers, and select the **OK** button to save or the **Cancel** button to abort any changes. These numbers will be displayed in the Baseline charts and reports.

Main Menu		Contract: MOH-2		System Date: JUN 87	
Contracts		CPR/CSSR	CPSR	Maintenance	Comm Windows Go
		7278.6	Period 1		1398.2
Current + 1	2081.4	Period 2		0.0	
Current + 2	2081.2	Period 3		0.0	
Current + 3	2132.4	Period 4		0.0	
Current + 4	2025.4	To Complete		0.0	
Current + 5	1817.6	Undist Budget		0.0	
Current + 6	1542.2	Total		20357.0	
Date: JUN 87		OK		C	

F1 Help F2 Date

Figure 3-22

Manpower - LRE

This menu option updates Manpower-LRE actual and forecast data at the lowest functional element level by using the input window illustrated in (Figure 3-23). This data is used to forecast Manpower to LRE (Format 4). Enter all data, and select the **OK** button to save or the **Cancel** button to abort any changes.

Manpower graphs are generated using Planned Current and Actual Current to display planned versus actual. The Planned Current input field is defaulted to the previous month's Current + 1 input. This number can be modified if desired to accommodate contract changes.

Main Menu		Contract: MOH-2		System Date: JUN 87	
Contracts		CPR/CSSR	CPSR	Maintenance	Comm Windows Go
		2.4	Period 1		1.6
Actual Cum	34.8	Period 2		1.6	
Current + 1	2.4	Period 3		0.0	
Current + 2	2.2	Period 4		1.8	
Current + 3	2.4	To Complete		0.0	
Current + 4	2.2	Total		52.8	
Current + 5	2.0	Planned Current		2.0	
Current + 6	1.8				
Element: 2000:PROJ MANAGEMENT		OK		C	
Date: JUN 87					

F1 Help F2 Date F3 Element

Figure 3-23

Manpower - BAC

Select this menu option to update Manpower-BAC planned and forecast data at the lowest functional element level by using the input screen shown in Figure 3-24. This data is used for BAC forecast of manpower. Enter all data, and select the **OK** button to save or the **Cancel** button to abort any

changes.

The screenshot shows the main menu of the CPR/CSSR system. The menu bar at the top includes: Main Menu, Contracts, CPR/CSSR, CFSR, Maintenance, Comm, Windows, Go, and a menu icon. The system date is JUN 87. A window titled '1' is open, displaying the following data:

Current + 1	0.0	Period 1	0.0
Current + 2	0.0	Period 2	0.0
Current + 3	0.0	Period 3	0.0
Current + 4	0.0	Period 4	0.0
Current + 5	0.0	To Complete	0.0
Current + 6	0.0	Total	0.0
		Planned Current	0.0

Below the table, the window displays: Element: 2000:PROJ MANAGEMENT, Date: JUN 87. At the bottom of the window are OK and C buttons. The bottom status bar shows: F1 Help F2 Date F3 Element.

Figure 3-24

Narrative

This menu option is used to enter contractor narrative data from Format 5 of the CPR for a selected element. When you select **Narrative** from the Monthly Manual Input menu, a window will be displayed with the active element and date (Figure 3-25).

Press **F2** to change the active date or press **F3** to change the active element. In either case, a window will be displayed from which you can select a new date/element. Press **F4** to switch between the WBS and Functional Structure.

The screenshot shows the main menu of the CPR/CSSR system. The menu bar at the top includes: Main Menu, Contracts, CPR/CSSR, CFSR, Maintenance, Comm, Windows, Go, and a menu icon. The system date is JUN 87. A window titled '1' is open, displaying the following data:

Element: 1000:MOH-2
Date: JUN 87

At the bottom of the window are OK and C buttons. The bottom status bar shows: F1 Help F2 Date F3 Element F4 Switch.

Figure 3-25

Select **OK** when the date and element are correct. A window will then be displayed where you can enter the narrative (Figure 3-26). You may enter and edit the Format 5 Narrative, but you may not print from this option.

Figure 3-26

Reprogramming Adjustment Schedule

Update reprogramming adjustment (dollars) for schedule, using the input screen shown in Figure 3-27, at Level-1 of the contract.

Figure 3-27

3.5 MONTHLY AUTOMATED INPUT

The sub-menu in (Figure 3-28) will be displayed when you select **Monthly Automated Input** from the CPR/CSSR pull-down menu. The Monthly Automated Input option allows users to import data in three formats: a PA Transfer file, an ANSI X12 839 file, and a CAPPS file. Each option is described in the sections below.

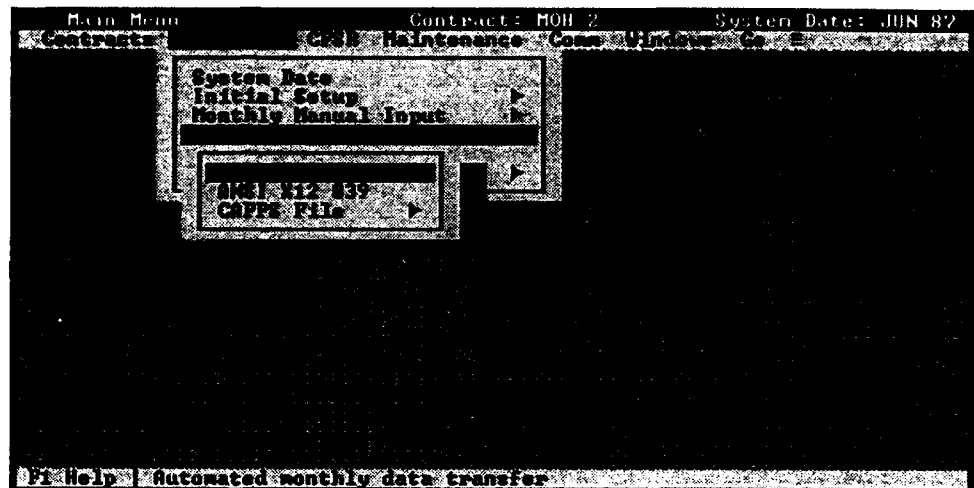


Figure 3-28

PA Transfer File (Text)

This option allows you to import data into PA from a PA Transfer File. The import function will update only those elements contained in the transfer file and leave all other elements unchanged. The PA Transfer File format is described in detail in Appendix C.

The contractor transfer disk should contain a README.DOC file in addition to the transfer file. The README.DOC file should contain information concerning changes to the update file, for example, WBS/Functional Structure modifications.

PA Transfer File Setup

Before you are ready to invoke the PA Transfer File import process, the following actions must be accomplished:

1. Follow procedures in the CPR Automated Data Transfer Specification to create an ASCII (i.e., text) data transfer file or obtain a transfer file from your contractor.
2. Create a contract in PA which will receive the imported ASCII text data.
3. You must create the WBS and Functional Structures. At the lowest level of the WBS and Functional Structure, the WBS and Functional codes must match **exactly** with the data contained in the transfer file.

Transfer File Import Process

The dialog box in Figure 3-29 will be displayed when you select **PA Transfer File** from the Monthly Automated Input sub-menu. The dialog box will contain a pick list of all files that are candidates for import into PA.

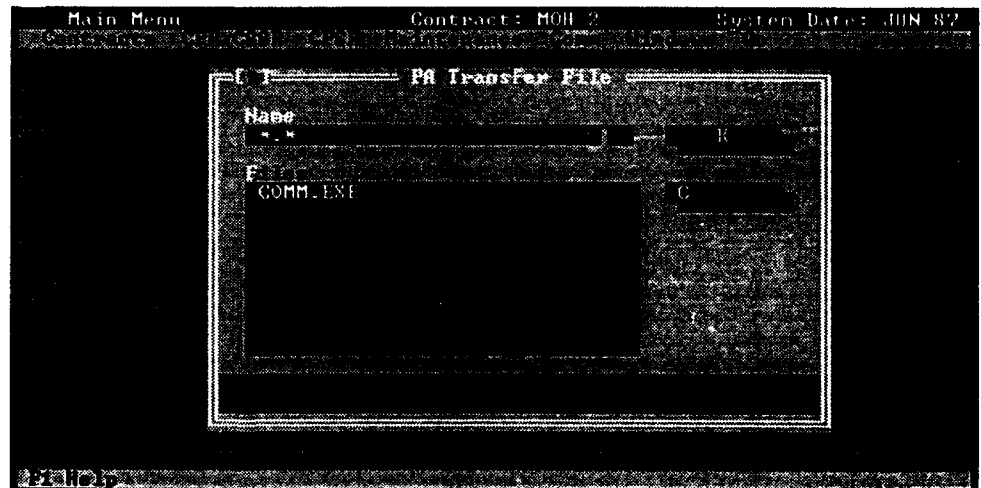


Figure 3-29

Once the import file has been selected, PA will perform error checks, create an error report, and inform you of the results (Figure 3-30). The error report lists any problems associated with the transfer file, such as WBS/Functional Structure incompatibilities, incorrect totals, etc. Select the **View Log** radio button to review the error report.

Once you have reviewed the error report, you must decide whether or not

to complete the PA Transfer File import process. To complete this process and update the contract with the data from the PA Transfer File, you must select the **Import** radio button. Otherwise, select the **Cancel** radio button to terminate the import process.

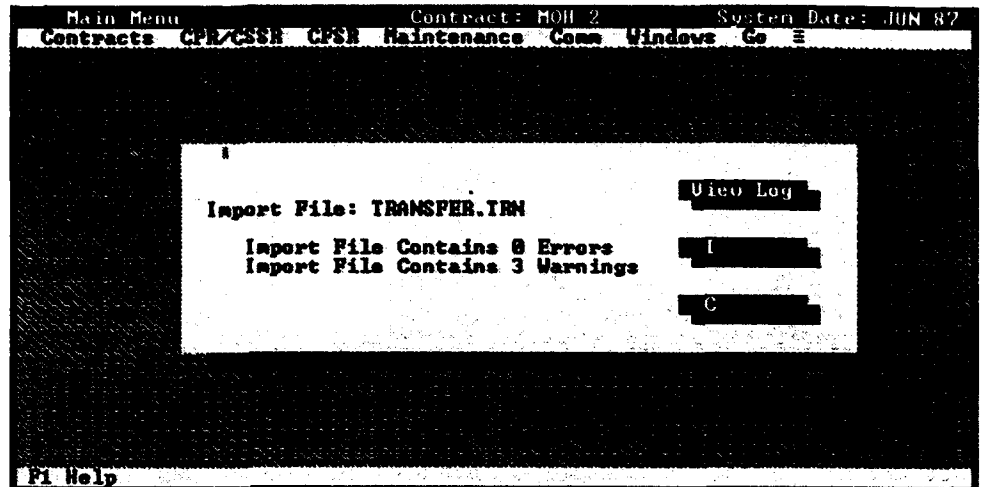


Figure 3-30

ANSI X12 839

This option allows you to import data into PA from a file that conforms to the American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 standard for Electronic Data Interchange (EDI). The format is specifically for the ANSI X12 839 Project Cost Reporting transaction set.

NOTE: Refer to *Appendix E ANSI X12 839 Standards* for specific information (e.g. file layout, data elements, assumptions, etc.) regarding this file.

The X12 transfer file contains the contract header information (i.e., contract name, contract number, contractor, etc.) and one month of data. The import function will check the existing database (to which the file is being loaded) to find the contract. It will attempt to match the contract on the 16 character contract name. If a match is found, the import function will overwrite the existing contract header information (all of which should be the same as the incoming file's information) and add the new month of data. If that month's data already exists the import function will provide a warning message. The user then selects to overwrite or cancel the import process.

ANSI X12 839 IMPORT PROCESS

The dialog box in Figure 3-31 will be displayed when you select **ANSI X12 839** from the Monthly Automated Input sub-menu. The dialog box will contain a pick list of all files that are candidates for import into PA.

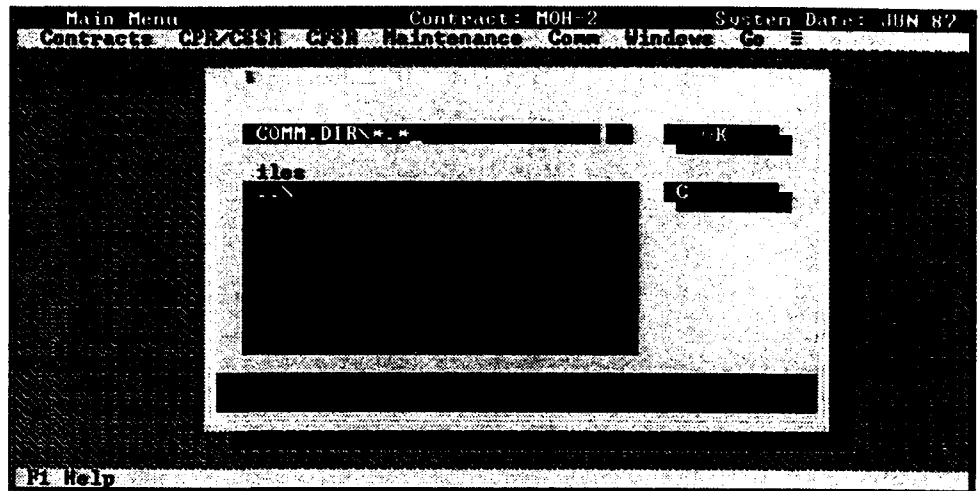


Figure 3-31

Once the import file has been selected, PA will perform error checks, create an error report, and inform you of the results. The error report lists any problems associated with the transfer file, such as WBS/Functional Structure incompatibilities, incorrect totals, etc. Select the **View Log** radio button to review the error report.

Once you have reviewed the error report, you must decide whether or not to complete the X12 file import process. To complete this process and update the contract with the data from the X12 file, you must select the **Import** radio button. Otherwise, select the **Cancel** radio button to terminate the import process.

CAPPS File

PA provides the capability to import data from the Contract Appraisal System (CAPPS), which was developed by the Defense Systems Management College (DSMC). (Figure 3-32). CAPPS provides most of the information supported by PA, with the following limitations: (1) CAPPS does not provide Formats 3, 4, or 5 of the CPR, and (2) CAPPS does not identify Indirect Costs elements (i.e., Overhead, General & Administration, Cost of Money) or Undistributed Budget in the same manner as PA. CAPPS is limited to 100 elements.

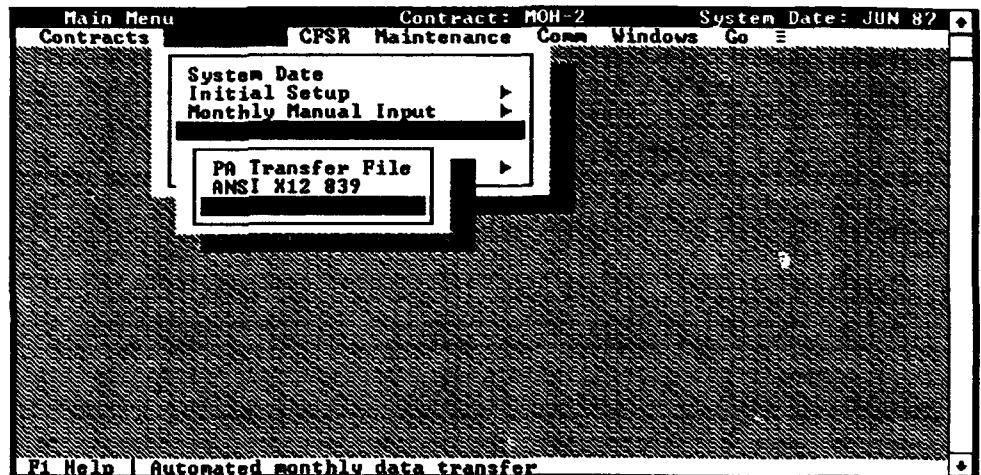


Figure 3-32

The contractor transfer disk should contain a README.DOC file in addition to the transfer file. The README.DOC file should contain information concerning changes to the update file, for example, WBS/Functional Structure modifications.

Selecting **CAPPS File** from the Monthly Automated Input menu, will display the CAPPS sub-menu shown Figure 3-33. The use of each option is described below.

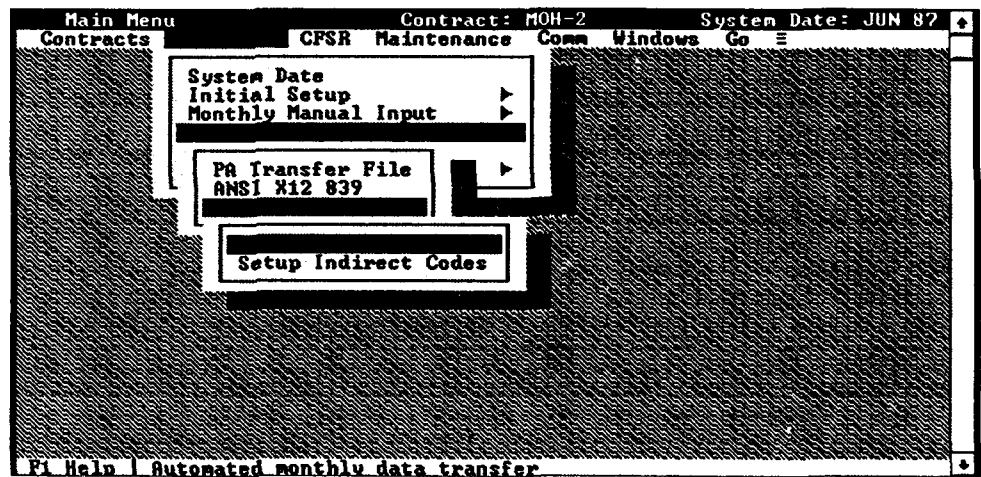


Figure 3-33

CAPPS Import Setup

Before you are ready to invoke the **Import CAPPS Data** menu option, the following actions must be accomplished:

1. Use CAPPS to create a data transfer file. See the Data Base Save section, Data Base Utilities chapter in the CAPPS Version 2.00 Users Guide, page IX-31.
2. Create a contract in PA which will receive the imported CAPPS data.
3. You must create the exact WBS and Functional Structure, with the same WBS and Functional codes, as the CAPPS data. Do not create Indirect Cost elements or Undistributed Budget elements in the WBS/Functional Structure in the PA contract.
4. You must now identify those CAPPS elements which equate to the PA Indirect Cost elements and Undistributed Budget. To do this, select **Setup Indirect Codes** from the CAPPS File sub-menu and identify the CAPPS data file. This process is described in the following section.

Setup Indirect Codes

You must perform the following process at least once for each contract that is to receive CAPPS data. You will not have to perform this step again unless the structure of the contract changes or the elements that correlate to the PA indirect costs change.

A dialog box will be displayed when you select **Setup Indirect Codes** from the Monthly Automated Input sub-menu. The dialog box will contain a pick list of all files that are candidates for import into PA.

Once you have selected a CAPPS File to import, a scrollable screen will appear listing the lowest level WBS elements contained in the CAPPS File. The following actions must be accomplished in order to import the CAPPS File:

1. Move to a line that corresponds to a PA indirect cost element.
2. Identify which PA indirect cost element the CAPPS line corresponds to by using the **Space Bar** to cycle through the available PA indirect elements.
3. Continue this process until you have identified all CAPPS elements that correspond to a PA indirect cost.
4. Select **OK** when all indirect cost elements have been identified. You are now ready to import the CAPPS data into PA. This process is described in the following section.

Import CAPPS Data

A dialog box will be displayed when you select **Import CAPPS Data** from the Monthly Automated Input sub-menu (Figure 3-34). The dialog box will contain a pick list of all files that are candidates for import into PA.

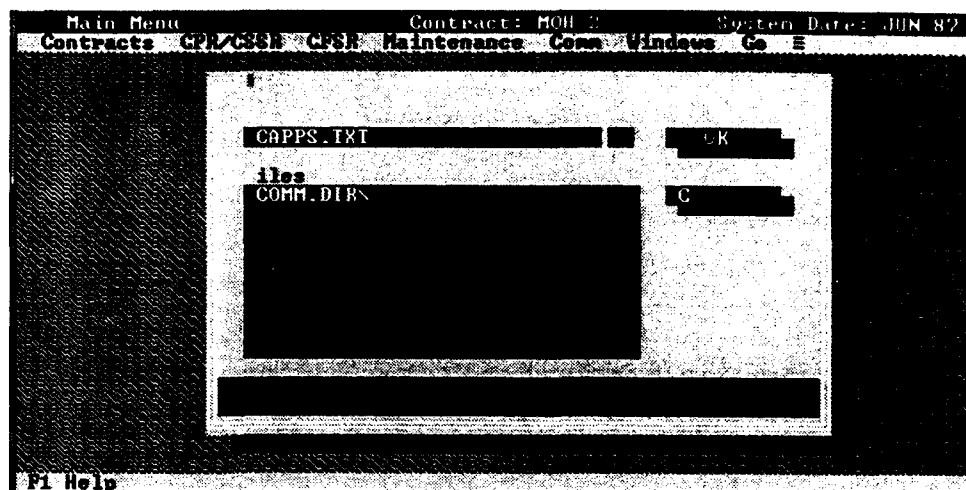


Figure 3-34

Once the import file has been selected, you will be given the option of importing data for a particular month or for all available months. To select all months, move to the end of the list and select - All -.

Once a month has been selected, PA will perform error checks, create an error report, and inform you of the results. The error report lists problems associated with the transfer file, such as WBS/Functional Structure incompatibilities, incorrect totals, etc. Select the **View Log** radio button to review the error report.

Once you have reviewed the error report, you must decide whether or not to complete the CAPPS File import process. To complete this process and update the contract with the data from the CAPPS File, you must select the **Import** radio button. Otherwise, select the **Cancel** radio button to terminate the import process. This error checking/import process will repeat for each month of data to be imported.

3.6 RECALCULATE

The PA Recalculate option is accessed from the CPR/CSSR pull-down menu, which is on the Main menu bar. This menu option will cause the calculation of forecasts-to-complete and subtotals. It may take several minutes to calculate this information, depending on the size of the database and the speed of the computer (processor and hard drive). Formulas used in this routine are described in Appendix A of this manual. You may select to calculate the entire database or select a month (press **F2**) and calculate that month and all data forward (Figure 3-35).

When to Recalculate

Recalculation must be performed when:

- New data are entered or when corrections to prior data are accomplished
- Changes to element or Analysis module thresholds are made
- Changes to forecasting parameters are made
- Changes to the WBS or Functional Structure are made that affect the summation process
- Changes are made to the Custom EAC formula or when a Custom EAC is added

Recommendation: Recalculate from initial month after restoring a contract or when changes are made to the WBS or Functional structures. Recalculate current month if a new month of data has been added. When a current month of data is added to a contract users should at least recalculate 7 periods, inclusive of current period, in order to capture the proper EAC forecasts in the current period. *The system does not recognize that period exists before the date from which the contract is being calculated.*

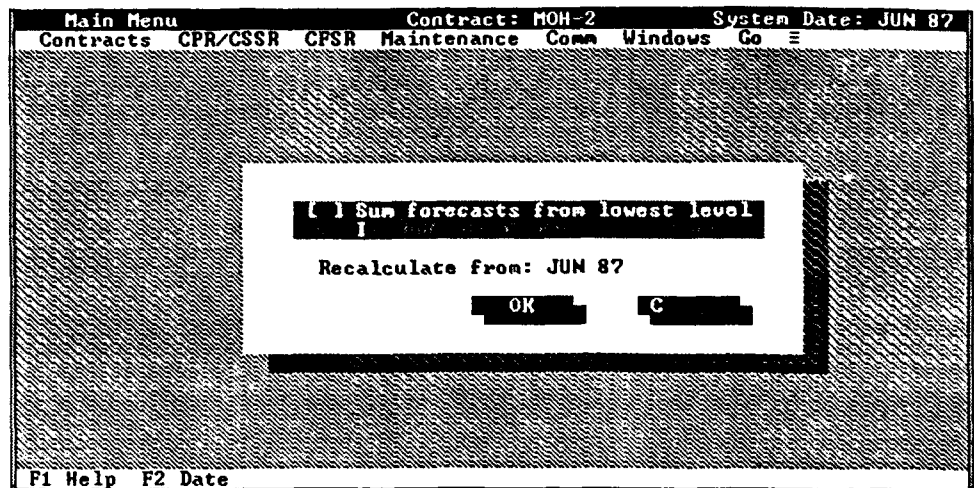


Figure 3-35

Summing Forecasts

You also have the option of summing forecasts up the tree from the lowest level or forecasting at each level. When the **Sum forecasts from lowest level** radio button is activated, forecasts are generated at the lowest level of the WBS/Functional Structure and summed to parent lines. Eventually they are summed to generate the Level-1 total. If the **Sum from lowest level** radio button is not selected, forecasts are generated at each level independently (not summed to parent lines), based upon the element's performance data. See Appendix A, Formulas, for an example of both situations.

Statistical forecasts at completion, % complete, % spent, % schedule, and to-complete index calculations can be performed at the total contract level (i.e., PMB+MR) or at the PMB. When calculations are generated at the total contract level, it is assumed that MR will be consumed at the Performance Factor.

If calculations are generated at the PMB, it is assumed that MR will not be consumed automatically. Activate the **Exclude Management Reserve** radio button when you want calculations performed at the PMB. Include Management Reserve when you want calculations performed at the total contract level.

When generating outputs at level one that exclude MR, all reports and graphs will be labeled "PMB" to indicate that the calculations were made at the PMB. "% Comp PMB:" indicates that calculations are at the PMB.

3.7 UTILITIES

The Utilities sub-menu will be displayed when you select **Utilities** from the CPR/CSSR menu (Figure 3-36). Each sub-menu option is described in the following sections.

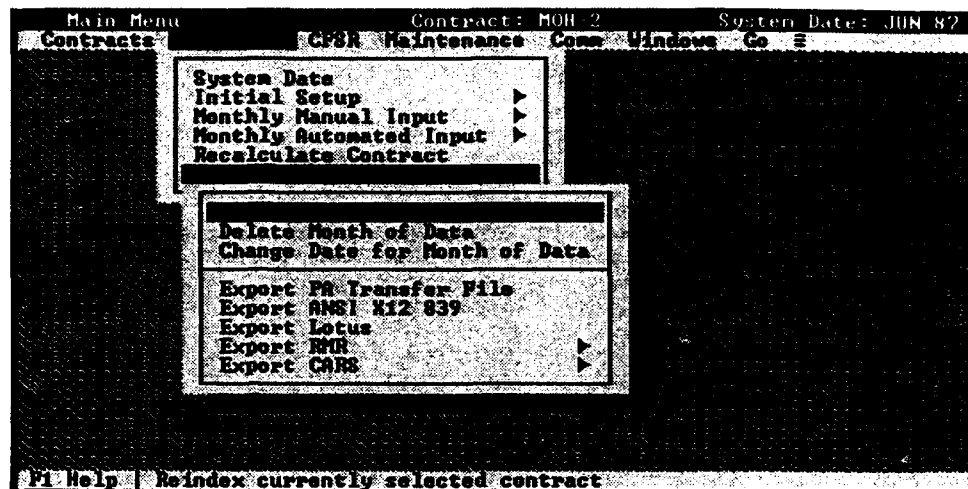


Figure 3-36

Reindex Contract

This option reindexes the files for the selected contract. If the power to your PC is turned off during a PA session or the system hangs for any reason, restart PA and select this option before you use any other option.

Delete Month of Data

This option displays a pop-up window of months that are currently in the database. If you have entered an incorrect month, highlight the month and press the **Enter** key. The month and all data associated with it will be deleted.

Change Date For Month of Data

You may change the date of the data (i.e., month and year). This feature is useful in the event a month of data has been entered with the wrong month/year. Selecting this option displays a pop-up window of available dates (Figure 3-37). Highlight the appropriate month / year in the **move from** window and then press the **Enter** key.

The move to pop-up window of dates will appear. Select one of the available months/years to move the data to, or select **<NEW>** to create a new date. You will be prompted to enter a new month and year if you select **<NEW>**. Note, do not change the date to a month that already has data.

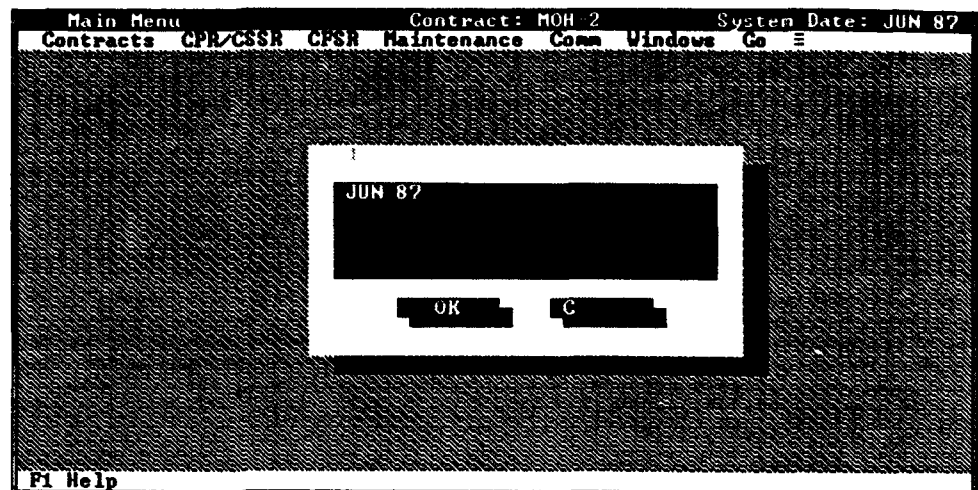


Figure 3-37

Export PA Transfer File

This menu option generates a PA transfer file. You can export information to a file that can be imported by other PA 4.0 users. Refer to Appendix C of this manual for information on the format of the generated export file.

Export ANSI X12 839

This menu option generates a file that conforms to the ANSI ASC X12 standard for EDI. The format is specifically for the ANSI X12 839 Project Cost Reporting transaction set. You can export information into a format that can be imported by PA or any system that supports the X12 839 standard.

The ANSI X12 file contains the contract header information (e.g., contract name, contract number, contractor, etc.) and one month of data. For an explanation of how that file get imported into PA, see *Chapter 6.1 Communications - Send X12 Transfer File*.

NOTE: Refer to *Appendix E ANSI X12 839 Standards* for specific information (e.g. file layout, data elements, assumptions, etc.) regarding this file.

Export Lotus

When you select **Export Lotus** from the Utilities sub-menu, the Lotus Export dialog box appears. The dialog box allows you to export all performance data for a selected WBS/Functional element or all elements for a selected month (Figure 3-38).

The dialog box is divided into two sections. In the first section you identify the structure of the data. That is, whether you are going to export WBS or Functional data. The second section of the dialog box identifies whether you want to export the data based upon a month of data or the element. The file produced will be compatible with Lotus 1-2-3 Version 2 or higher. Exporting to a spreadsheet format is useful for producing custom graphs or performing "what-if" type exercises. The system will prompt you for the

destination drive and directory.

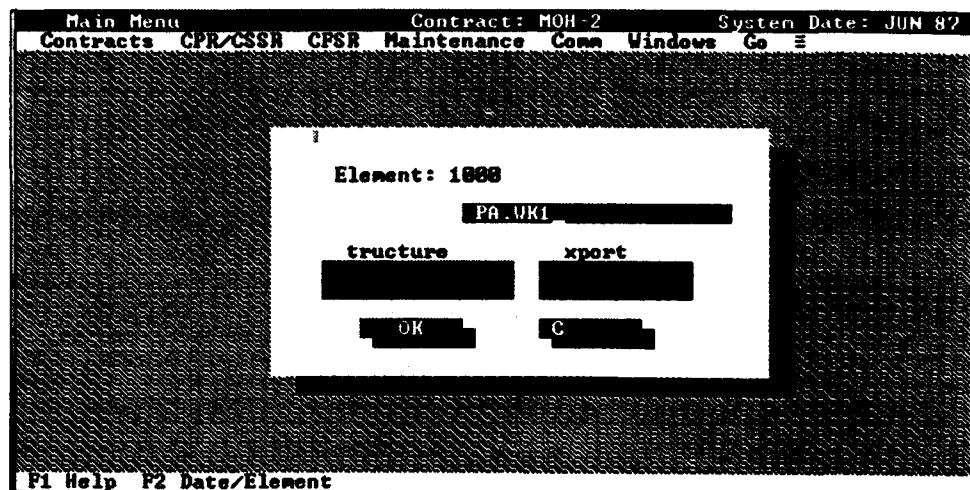


Figure 3-38

Export WBS Element will transfer all data for a specified WBS element to a Lotus worksheet file.

Export Functional Element will transfer all data for a specified Functional element to a Lotus worksheet file.

Export Date allows you to transfer data for all WBS or Functional elements for a specified month to a Lotus worksheet file.

Export RMR

The SMC/FMCI RMR system contains Level-1 contract data that is used by the Space and Missile Systems Center (SMC) Comptroller and Commander as a management information and reporting tool. Selecting **Export RMR** from the **Windows** sub-menu will cause the RMR Export menu to be displayed.

Select the **Export RMR** sub-menu option if you want to invoke the automated transfer of cost performance data from PA to the SMC/FMCI RMR system. This option will generate the RMR export file for the selected month of data (determined by the PA system date).

The PA will prompt you for the destination drive and directory (Figure 3-39). Enter the export path (e.g., "A:\"). The export file will automatically be named the RMR contract code number with a .DBF file extension (e.g., RMR_528.DBF). SMC/FMCI has a complementary program that will then import the data from your floppy diskette into the SMC/FMCI RMR data base.

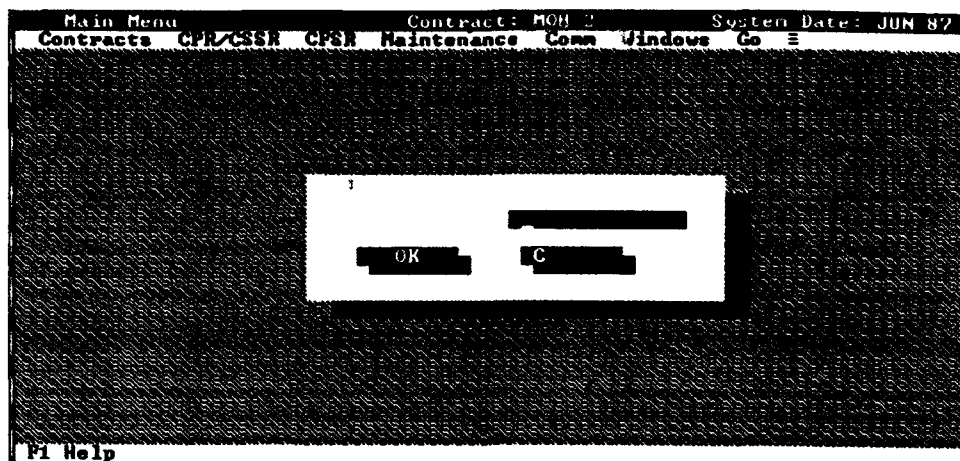


Figure 3-39

In order to transfer data to the RMR system, you must enter a unique RMR contract code number assigned by SMC/FMCI to your contract. Call SMC/FMCI at (310) 363-1520 to determine the appropriate contract code number. Enter the contract code number by selecting **RMR Setup**. Once you have entered this code, it does not have to be repeated monthly.

Export CARS

When you select **Export CARS**, the Export CARS sub-menu will be displayed (Figure 3-40). It provides for the automated transfer of cost performance data (Section 7 of DAES) to CARS version 4.0. The old DAES is actually a subset of the CARS. If your Program Office is required to submit to the PC CARS, you must locate the person responsible for updating the PC CARS and determine which computer hosts the system and database.

For the recurring automated data transfer to work, you must do the following:

1. Enter your contract and one month of data through the PC CARS system to initialize the PC CARS database.
2. Install the PA to CARS Utility onto the PC CARS computer (discussed at the end of this section).

The PA to CARS Utility will provide: (1) the PC CARS unique contract code number for your contract (This 2 position contract code number is assigned internally by CARS) and (2) the ability to import your data into the PC CARS.

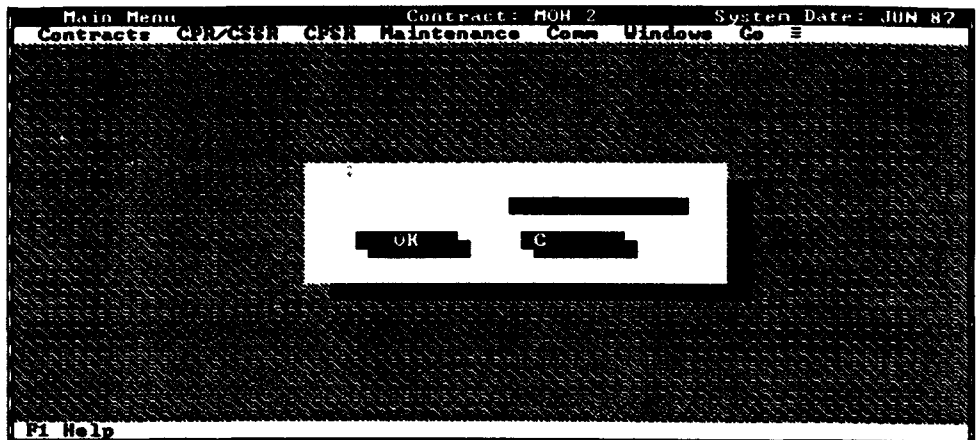


Figure 3-40

Input Monthly CARS Data (CARS Setup)

For each monthly update, you must contact the PC CARS person in your SPO and determine the exact Submit Date of the current CARS report. This is specified in the PC CARS when the reporting period is initialized. This date is required to properly link the PA to the PC CARS database. This date will change for each update. The contract code number must also match exactly, but will not change from month to month. If these two items do not match, the update will not occur. Figure 3-41 shows the input screen where this data is entered. Once this input screen is complete, select **OK** to save the changes.

Some of the information required by the CARS database is not part of PA. This data must be input each time a file is exported to CARS. Inputs are as follows:

- **Submit Date:** The CARS submission date.
- **Delivered Quantity:** Actual delivered quantity to date.
- **Planned Quantity:** Cumulative quantity planned for delivery to date.
- **CARS contract code:** The internal CARS code for the contract being updated.
- **Complete:** Indicate whether or not this contract is complete.
- **MS 1:** The name of the first contract critical milestone.
- **MS Date 1:** Current estimated completion date for the first critical milestone.
- **MS 2:** The name of the second contract critical milestone.
- **MS Date 2:** Current estimated completion date for the second critical milestone.
- **Classification:** Enter the security classification of the contract information.

Selecting the F3 key allows you to enter comments if desired. Selecting the F2 key allows you to display the input screens with relevant data for .

previous submissions of the current contract.

NOTE: Using the F2 key does not change the system date for PA. To change the system date, (i.e. export a different month of data) you must return to the main menu.

In order to transfer data to the CARS system, you must enter the unique **CARS Contract Code** number assigned to your contract. Follow the instructions in the Installing PA to CARS Program paragraph at the end of this section to determine the appropriate contract code number to enter.

The screenshot displays a software interface for data entry. At the top, a menu bar includes 'Main Menu', 'Contract: MOH-2', and 'System Date: JUN 82'. Below this, a secondary menu lists 'Contracts', 'CPR/CSSR', 'CPSR', 'Maintenance', 'Comm', 'Windows', and 'Go'. The main area is divided into two columns. The left column, titled 'Misc. Data', contains fields for 'Delivered Qty' (25 JUN 82), 'Planned Qty' (9), 'CARS Contract Code' (a blacked-out field), and 'Complete' (a blacked-out field). The right column, titled 'Critical Milestone Data', contains fields for 'MS 1', 'MS Date 1', 'MS 2', 'MS Date 2', and 'Classification' (all blacked out). At the bottom left, it says 'Date: JUN 87'. At the bottom right, there are 'OK' and 'C' buttons. A footer bar at the very bottom shows 'F1 Help', 'F2 Date', and 'F3 Narrative'.

Figure 3-41

Begin Export & Create the Data Transfer File (Export CARS)

When you select **Export CARS** from the CARS sub-menu (Figure 3-42) in PA, you will be prompted for the destination drive. Enter the export path (e.g., "A:" to send the file to the A: drive) and select **OK**. A file will be generated using the contract code number with a .DBF extension (e.g., CARS_1.DBF).

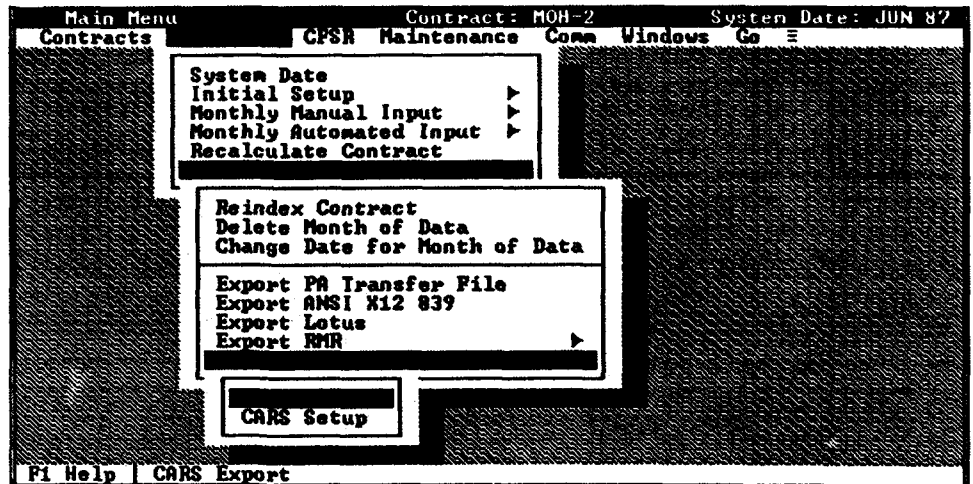


Figure 3-42

Import the Data Transfer File (Import PA) into CARS

Install the PA to CARS Utility as described in the following section. Run the utility by typing **PATOCARS** and pressing **Enter**. Select **Import File** from the menu and select the file you want to import by typing in the drive, path and filename. (Figure 3-43) Relevant data from the file you are importing will be displayed. If the data is correct, select **Import**. The screen will display the message **Import Successful** when the program is finished importing the data.

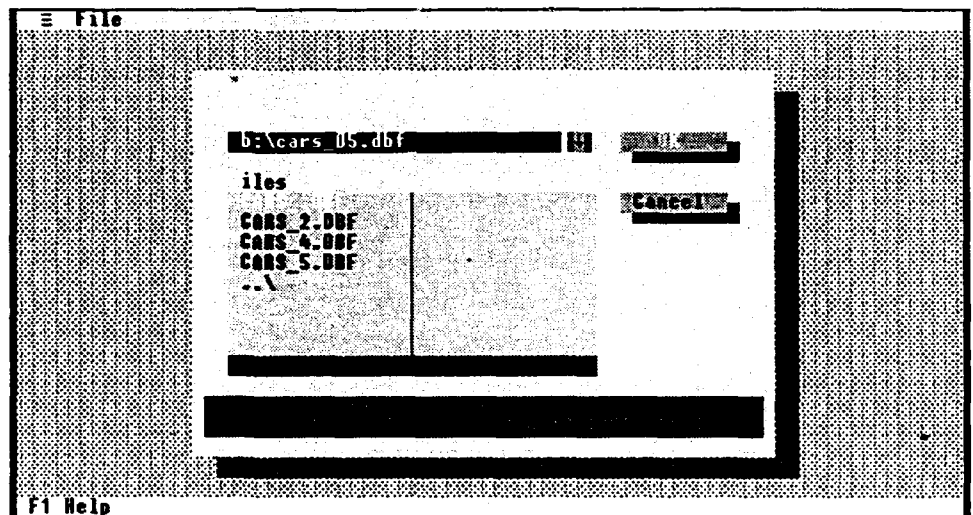


Figure 3-43

Installing the PA to CARS Utility to the CARS System

The PA to CARS Utility is needed in order to determine the PC CARS contract number. This number is needed in order to import the PA generated CARS Export file into the PC CARS database.

Locate the computer and hard disk on which the PC CARS program is installed. You must next determine on which subdirectory the contract that you will be updating resides. (CARS provides a search utility in the opening menu which allows you to determine this.) **The PA to CARS**

Utility must be installed on this directory. Make a note of this subdirectory and insert the PA disk #1 into your disk drive. Go to that drive by typing the drive letter followed by a ":" (e.g. B:). Once you are in that drive, type: "Install Util". Enter your contract subdirectory path at the Install To prompt. For example, let's say your CARS contract is located in C:\CARS\MYDATA you would type C:\CARS\MYDATA at the prompt. Select the PA to CARS Utility option. Select OK to begin the installation. Follow the screen prompts to completion of this process.

From the CARS subdirectory on which the contract is installed, type **PATOCARS** and press **Enter**. Select **List Contracts** from the File sub-menu. A screen will appear displaying your PC CARS contract number (NO. column) and Contract Name. Make note of this number because it is required in the PA database in order to link the PA and the PC CARS. If your contract does not appear on this screen, then you must initialize it through the PC CARS application by entering the related contract information and one month of data. Once you have initialized the contract, re-run the PA to CARS Utility to determine the CARS unique contract number.

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Chapter 4: CFSR

4.0 CFSR

The CFSR menu (Figure 4-1) provides access to CFSR reporting options. These options are available after a contract has been opened.

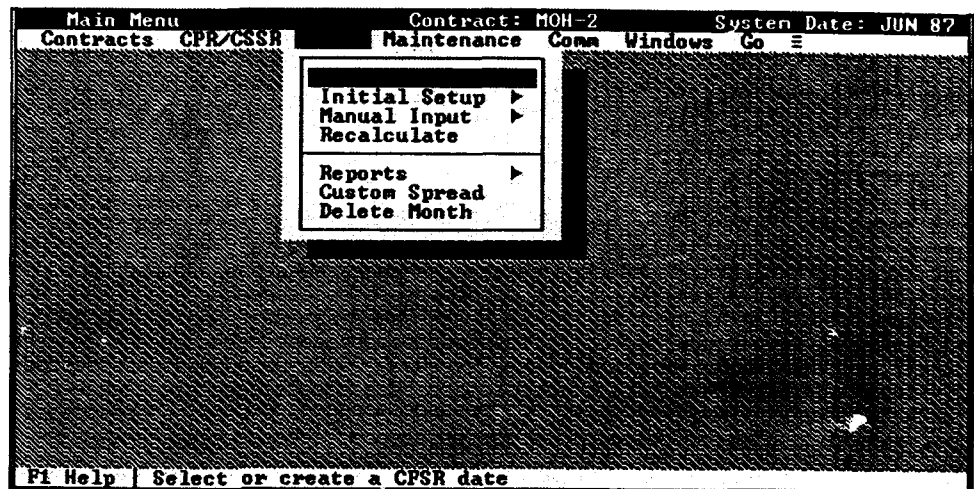


Figure 4-1

4.1 SYSTEM DATE

The system date is the date for which you will enter, edit or analyze data. The system date always defaults to the latest month of recalculated data. However, by changing the system date you may enter, edit, or analyze data for a prior month. You may select a different system date for the CFSR and the CPR.

Changing the System Date

Change the system date to the appropriate month and year by highlighting the month and year desired in the pop-up window as displayed in Figure 3-2 and pressing the **Enter** key. Note that only the last 36 months of data are displayed in the pop-up window and that the **Down Arrow** or **Page Down** keys can be used to access additional months.

To create a new month of data, press the **Page, Down Arrow, or End** key and select **New** from the pop-up window. Then type in a month and year (e.g., JUN 87).

4.2 INITIAL SETUP

The **Initial Setup** option from the CFSR pull-down menu, provides two options: **CFSR Structure** and **Variance Threshold**. These options are discussed below.

Two function keys are available for your use on the input screens that you will encounter. **F3** allows you to change elements. **F8** allows you to edit an element's fund type (source and appropriation) and fiscal year.

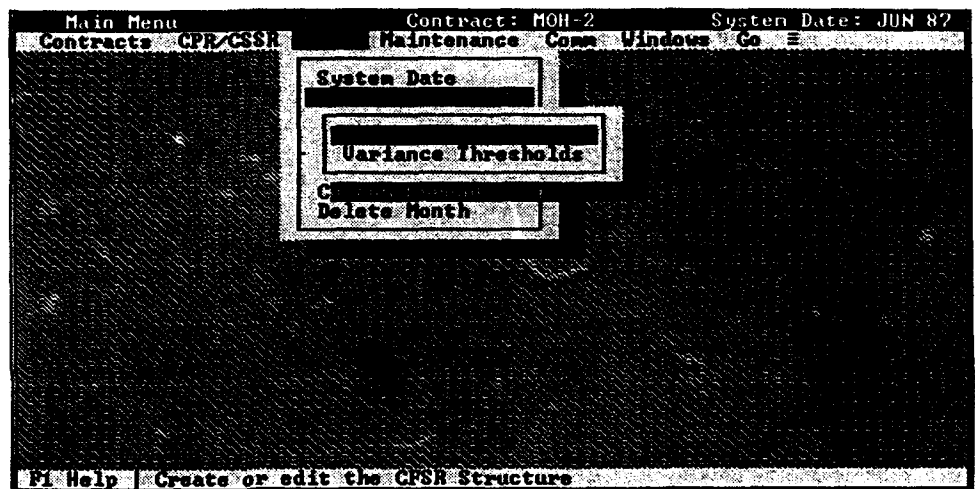


Figure 4-2

CFSR Structure

The CFSR module has been designed so you can enter a separate page of the CFSR for each unique Fund Type. A unique fund type consists of a source (e.g., Ai: Force, Army, SDIO/PMA, etc.), an appropriation (e.g., 3600, 3020, 3400), and a fiscal year (e.g., 90). Level-1 of the CFSR structure is the total contract. Level-2 identifies the source of the funds and the appropriation. Level-3 of the structure represents the fiscal year of the Level-2 fund type. You may have as many fund types and fiscal years as necessary. Figure 4-3 shows an example of the sources and appropriations structure.

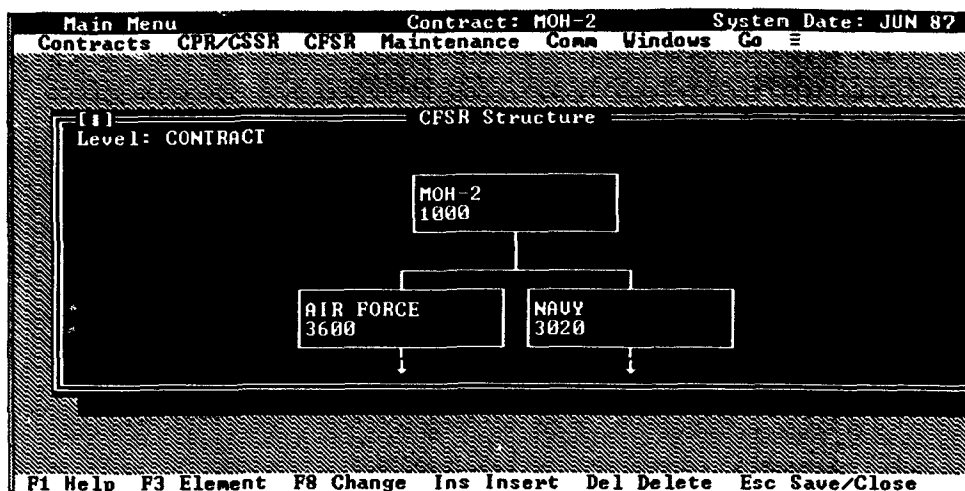


Figure 4-3

An example of a structure with Air Force 3600 funds spanning three years (89-91). **The contractor must submit a separate CFSR page for each unique fund type.** In most cases, a summary page is also submitted displaying total funding. The contractor must submit a minimum of three pages of the CFSR representing the lowest level of the CFSR structure. The CFSR module will calculate summary levels.

Variance Thresholds

Variance Thresholds are used in the reconciliation process to determine if the CFSR is "close enough" to the CPR or if the contractor is required to explain the deviation. These thresholds are not contractual, rather they are user-defined. Use your own discretion. For example, the target price (CPR) should exactly match the definitized amount in the CFSR. You may want to configure the system so that any deviation between the two will be flagged. You would do this by entering "0" in the \$ and % field. However, the cumulative Actual Cost of Work Performed (CPR) and Accrued Expenditures on the CFSR will most likely be different because of estimated fee on each, and other issues related to such items as materiel accounting.

You may want to set a threshold for acceptable deviations. If both the \$ and % amounts must be exceeded before a flag is generated, enter "AND" in the AND/OR field. If a flag is to be generated if either is exceeded, enter "OR" in the AND/OR field. The Variance Thresholds entry screen is shown below in (Figure 4-5).

Main Menu		Contract: MOH-2		System Date: JUN 87	
Contracts		CPR/CSSR	CPSR	Maintenance	Comm Windows Co
CPR	CPSR	\$	%		
		1.0	1.0		
Authorized but Unpriced Work	Not Definitized	1.0	1.0		
Cumulative Actual Cost of Work Performed	Accrued Expenditures	200.0	3.0		
LRE	At Completion	50.0	3.0		
Date: JUN 87		OK		C	

F1 Help F2 Date

Figure 4-5

4.3 MANUAL INPUT

Currently, only a manual method of entering data is supported. When you select **Manual Input** from the CFSR pull-down menu, you are given a choice between two menu options: (1) Header Information and (2) Blocks 11, 12, 13, 14. (Figure 4-6).

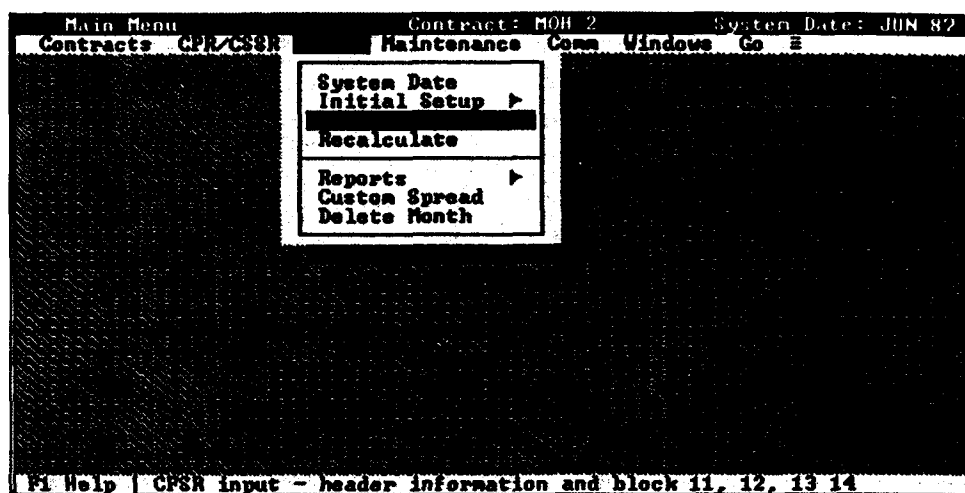


Figure 4-6

Header Information

For each month where a CFSR is submitted, you must fill out the header data (Figure 4-7). Information for this screen is contained on the first (or summary) page of the CFSR and is applicable to all pages of the CFSR. Enter the cutoff date for the most current CFSR report and the cutoff date for the previous CFSR. The cutoff date for the CFSR will be compared to the cutoff date for the CPR of the same accounting period (month). The contract price information is pulled from the PA database. Enter the number of months for each period in block 12 of the CFSR. For example, if the first period covers the first quarter of FY 90, then enter "3" in the Period 1 field (since there are 3 months in one quarter).

Main Menu		Contract: MOH-2		System Date: JUN 87																			
Contracts		CPR/CSSR	CPSR	Maintenance	Comm Windows Go																		
<div style="display: flex; justify-content: space-between;"> <div> <p>DATES</p> <p>Previous Report: 30 JUN 87 30 APR 87</p> <p>Contract Price</p> <p>Initial Price: 0.0 Initial Ceiling: 26200.0 Adjusted Price: 22459.2 Adjusted Ceiling: 26200.0</p> <p>Date: JUN 87</p> </div> <div> <p>Months in each CFSR Period (Block 12)</p> <table border="1"> <tr><td>Period 1</td><td>1</td></tr> <tr><td>Period 2</td><td>1</td></tr> <tr><td>Period 3</td><td>1</td></tr> <tr><td>Period 4</td><td>1</td></tr> <tr><td>Period 5</td><td>1</td></tr> <tr><td>Period 6</td><td>1</td></tr> <tr><td>Period 7</td><td>1</td></tr> <tr><td>Period 8</td><td>1</td></tr> <tr><td>Period 9</td><td>1</td></tr> </table> </div> </div>						Period 1	1	Period 2	1	Period 3	1	Period 4	1	Period 5	1	Period 6	1	Period 7	1	Period 8	1	Period 9	1
Period 1	1																						
Period 2	1																						
Period 3	1																						
Period 4	1																						
Period 5	1																						
Period 6	1																						
Period 7	1																						
Period 8	1																						
Period 9	1																						
				OK	C																		
F1 Help F2 Date																							

Figure 4-7

Blocks 11, 12, 13, 14

For each fund type and fiscal year, you must enter the related data contained in Blocks 11, 12, 13, and 14 of the CFSR. Figure 4-8 shows the data required from Block 11 for a selected page of the CFSR (Source, Appropriation, FY).

Main Menu		Contract: MOH-2		System Date: JUN 87	
Contracts		CPR/CSSR	CPSR	Maintenance	Comm Windows Go
<div style="display: flex; justify-content: space-between;"> <div> <p>Accrued Exp Plus Open Commitments: 22460.0 9960.0</p> <p>Definitized: 22460.0</p> <p>Not Definitized: 0.0</p> <p>Subtotal: 22460.0</p> <p>Not Yet Authorized: 0.0</p> <p>All Other Work: 0.0</p> <p>Subtotal: 0.0</p> <p>Total Requirements: 22460.0</p> <p>Funds Carryover: 0.0</p> <p>Net Funds Required: 22460.0</p> <p>Element: AIR FORCE 3600 87</p> <p>Date: JUN 87</p> </div> <div> <p>OK</p> <p>N</p> <p>C</p> </div> </div>					
F1 Help F2 Date F3 Element					

Figure 4-8

To enter Blocks 12, 13, and 14 data, select the **Next** button. Figure 4-9 shows the data required for Blocks 12, 13, and 14. Open Commitments, Billings, and Termination Costs are entered as incremental values. Expenditures are entered as cumulative values.

Main Menu Contract: MOH-2 System Date: JUN 87
 Contracts CPM/CSSR CFSR Maintenance Comm Windows Co

	Commitments	Expenditures	Billings	Termination
107_		9852	8616	N/A
Period1	0	11845	2112	600
Period2	0	13856	2128	600
Period3	0	15924	2172	600
Period4	0	17879	2082	500
Period5	0	19610	1903	500
Period6	0	21068	1724	500
Period7	0	22211	1509	400
Period8	0	22405	163	400
Period9	0	22460	51	400
At Completion	0	22460	22460	0

OK P C

Element: AIR FORCE 3600 87
 Date: JUN 87

F1 Help F2 Date F3 Element

Figure 4-9

4.4 RECALCULATE

The recalculate menu option is used to sum CFSR data up the CFSR structure. When you select this option, a pick list window containing the months of the data will be displayed (Figure 4-10).

When To Recalculate

If you entered a new month of CFSR data, you may recalculate only the most recent month of data. If you have corrected prior data, recalculate from the oldest month changed forward. **You must run the CFSR recalculation in addition to your normal CPR or C/SSR recalculation.**

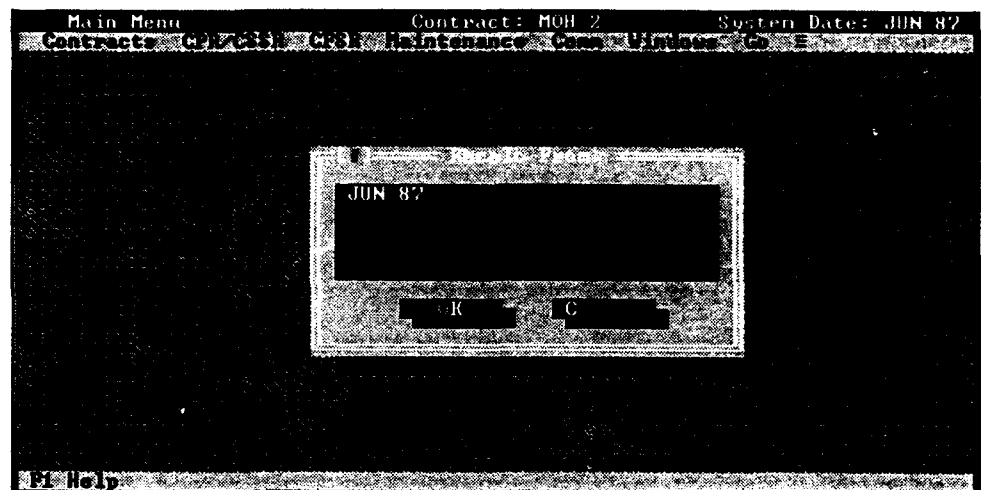


Figure 4-10

4.5 CFSR REPORTS

Selecting **Reports** from the CFSR pull-down menu will display the Reports sub-menu (Figure 4-11). This sub-menu allows you to view and print the CFSR, Reconciliation, and other funding reports. It also allows you to enter the SPO analyst's custom spread of the funds required. Each available report is discussed in the following sections.

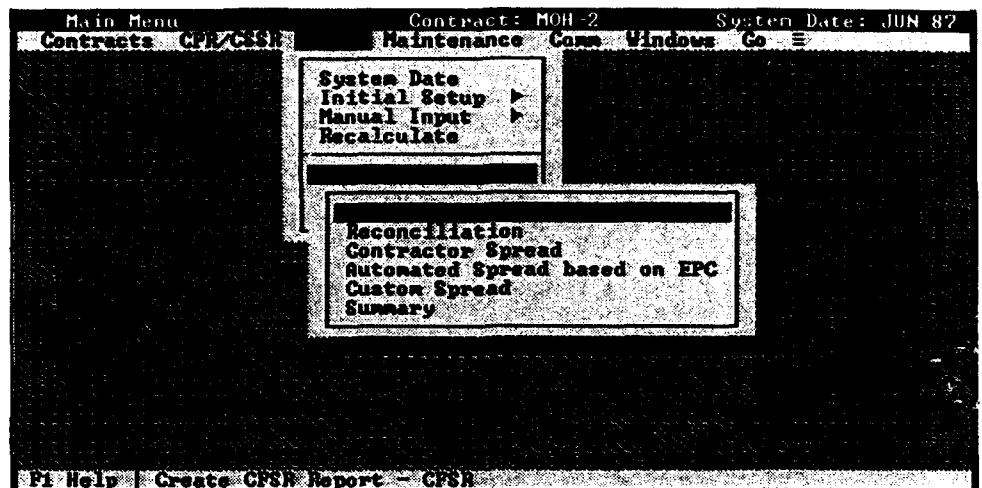


Figure 4-11

A dialog box will be displayed when you select a report. This dialog box is used to indicate where you want the report to be directed - to the screen, printer, or a text file. If you direct the report to a file, you must also specify a path and file name.

The **Contract Funds Status Report (CFSR)** provides an estimate of funding requirements by WBS element and Appropriation. The PA will print a CFSR page for each lowest level item (Fiscal Year and Fund Type) and a single summary page at the total contract level.

The **Reconciliation** report provides a reconciliation of the CPR and CFSR.

The **Contractor Spread** report provides the contractor's request for time-phased funds by source, appropriation, and fiscal year. Estimated funding required is calculated as follows:

$$\text{Est Funding} = \text{Est Open Commitments (Block 12a)} + \text{Est Expenditures (Block 12b)} + \text{Est Termination Costs (Block 14)}$$

This **Automated Spread Based on EPC** report provides the funds required, based upon the SPO Estimated Price at Completion (EPC) broken out by source, appropriation, and FY, and time-phased based on the contractor's request. This is done by spreading the SPO EPC on a percentage basis based on the contractor's projected needs.

This **Custom Spread** report displays a modified version of the Automated Spread based on SPO EPC that has been customized by the analyst. The analyst must enter changes to the Automated Spread based on SPO EPC report for this report to operate.

The **Summary Report** displays all of the above reports in one format for comparison purposes.

4.6 CUSTOM SPREAD

The Custom Spread input screen allows you to modify the time phasing and/or fund type required to meet the SPO EPC (Figure 4-12). For example, if the analyst disagrees with the contractor and intends to fund with \$2 million of 3020 instead of the contractor's requested \$2.0 million of 3600, this can be changed in the custom spread entry screen. To accomplish this, the analyst would go to the appropriate 3020 FY and reduce the requirements by \$2.0 million and increase the requirements in the appropriate 3600 page.

The screenshot displays the 'Custom Spread' input screen. At the top, it shows 'Main Menu', 'Contract: MOH 2', and 'System Date: JUN 82'. Below this is a navigation bar with 'Contracts', 'CPR/CIS', 'CFS', 'Maintenance', 'Comm', 'Windows', and 'Go'. The main area contains a table with 'Period' and 'Custom Spread' columns. To the right, a box titled 'EPC Totals' shows 'EPC' as 26888.8, 'CALC EPC' as 24218.8, and 'DELTA' as 1778.8. At the bottom left, it says 'Element: AIR FORCE 3600 82' and 'Date: JUN 82'. At the bottom right, there are fields for 'K' and 'C'. A footer bar at the very bottom shows 'F1 Help', 'F2 Date', and 'F3 Element'.

Period	Custom Spread
1	10000.0
2	15000.0
3	20000.0
4	24200.0
5	24200.0
6	24200.0
7	24200.0
8	24200.0
9	24200.0

EPC Totals

EPC 26888.8

CALC EPC 24218.8

DELTA 1778.8

Element: AIR FORCE 3600 82
Date: JUN 82

F1 Help F2 Date F3 Element

Figure 4-12

4.7 DELETE MONTH

Select the month of data you want to delete by highlighting it in the pop-up window and pressing the **Enter** key (Figure 4-13).

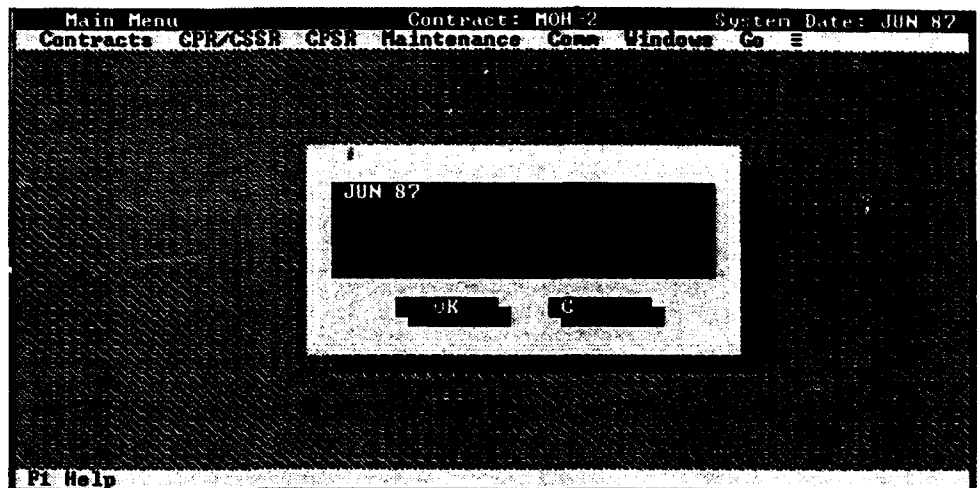


Figure 4-13

Chapter 5: MAINTENANCE

5.1 SETUP OPTIONS

The Maintenance pull-down menu provides options to update printer and plotter settings, setup the modem, change screen colors and update supervisor/user passwords (Figure 5-1). Each of these menu options is discussed in this section.

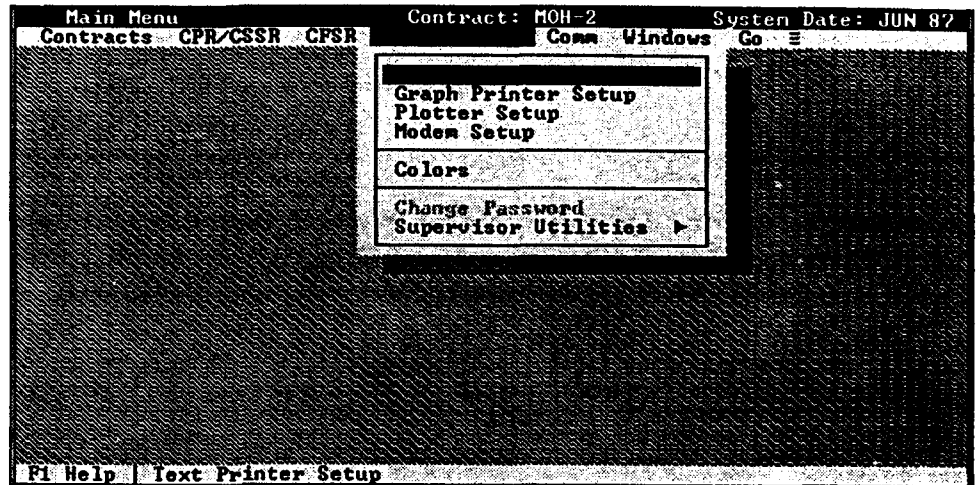


Figure 5-1

NOTE: Refer to the applicable hardware manual for specific information on printer, plotter, or modem setups.

Report Printer Setup

The Report Printer Setup dialog box displays the current printer type. (Figure 5-2) From this dialog box you can specify (or change) the type of printer you have and its port settings. Select the **Printer** button to change the printer type.

When you select the **Printer** button from the Report Printer Setup dialog box, a sub-menu containing a list of basic printer types supported by PA will appear (e.g., HP LaserJet). Select the one that matches your printer.

NOTE: If you are printing to a HP LaserJet 4 you must set the internal printer font to Font 47 to condense the print so that it will fit on 8 1/2 x 11 paper. Change the internal printer font through the printer control panel. Reference the Printer Manual for details on using the control panel.

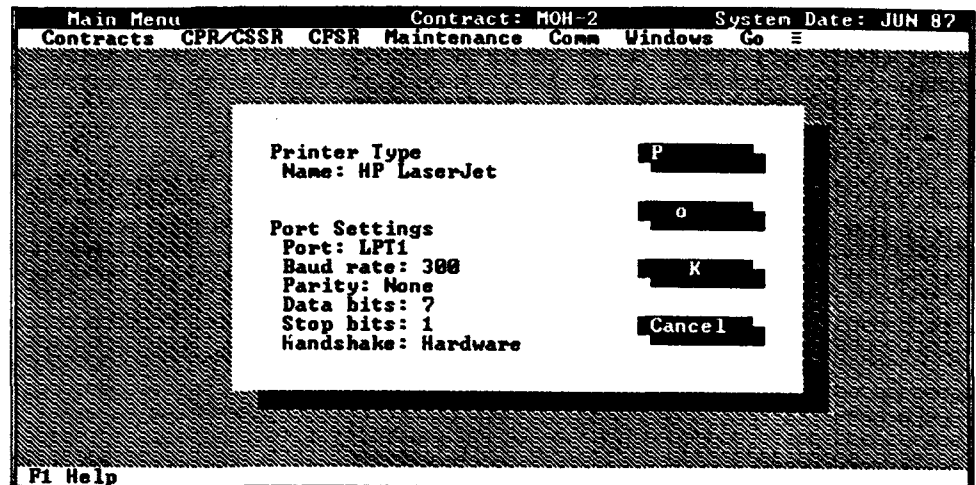


Figure 5-2

To change the port settings select the **Port** button and the output port setup dialog will appear (Figure 5-3). From this dialog box you will be able to identify the port to be used, the baud rate, the parity (if any), the number of data and stop bits, and the handshake method. If you are unsure which settings you should use, refer to your printer hardware manual or consult your database administrator.

<u>PRINTER TYPE</u>	<u>ORIENTATION CODE</u>	<u>DESCRIPTION</u>
Dot Matrix	HalfLo	Half page, low resolution, portrait orientation
	HalfMed	Half page, med. resolution, portrait orientation
	HalfHi	Half page, high resolution, portrait orientation
	LandLo	Full page, low resolution, landscape orientation
	LandMed	Full page, med. resolution, landscape orientation
	LandHi	Full page, high resolution, landscape orientation
	FullLo	Full page, low resolution, portrait orientation
	FullMed	Full page, med. resolution, portrait orientation
	FullHi	Full page, high resolution, portrait orientation
HP Printer	HalfLo	Half page, low resolution, portrait orientation
	HalfMed	Half page, med. resolution, portrait orientation
	HalfHi	Half page, high resolution, portrait orientation
	LandLo	Full page, low resolution, landscape orientation
	LandMed	Full page, med. resolution, landscape orientation
	LandHi	Full page, high resolution, landscape orientation
	FullLo	Full page, low resolution, portrait orientation
	FullMed	Full page, med. resolution, portrait orientation
	Full Hi	Full page, high resolution, portrait orientation
PostScript Printer	Half	Half page, black & white, portrait orientation
	Land	Full page, black & white, landscape orientation
	Full	Full page, black & white, portrait orientation
	HalfGR	Half page, 16 shades gray, portrait orientation
	LandGR	Full page, 16 shades gray, landscape orientation
	FullGR	Half page, 16 shades gray, portrait orientation
	HalfC16	Half page, 16 colors, portrait orientation
	LandC16	Full page, 16 colors, landscape orientation
	FullC16	Full page, 16 colors, portrait orientation
	HalfC256	Half page, 256 colors, portrait orientation
	LandC256	Full page, 256 colors, landscape orientation
	FullC256	Full page, 256 colors, portrait orientation

Table 5-1 Basic Printer Orientations

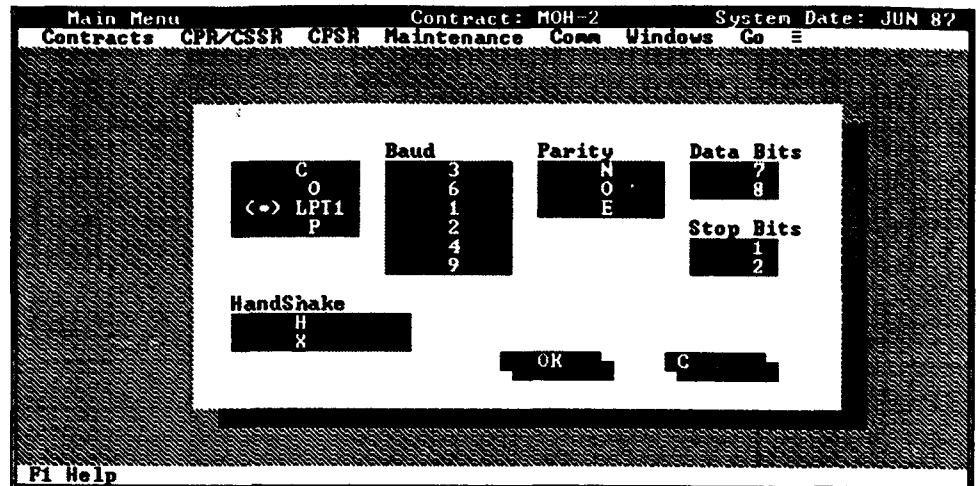


Figure 5-3

Graphics Printer Setup

The Graph Printer Setup dialog box displays the current printer type and its orientation (e.g., landscape). From this dialog box you can specify (or change) the type of printer you have and its port settings. Select the **Printer** button to change the printer type.

When you select the **Printer** button, a sub-menu containing a list of basic printer types supported by PA will appear (e.g., dot matrix printer, HP Printers). From the list of basic printer types select the one that matches your printer. After you select the basic printer type a second sub-menu containing the names of the specific printers supported by PA (Figure 5-4). When you identify the printer you are using (e.g., LaserJet IV), a third sub-menu will appear where you can specify the orientation and resolution of the output. Table 5-1 identifies the different orientations available for the HP and Postscript printer types.

NOTE: If you are printing to a HP LaserJet 4 you must set the internal printer font to Font 47 to condense the print so that it will fit on 8 1/2 x 11 paper. Change the internal printer font through the printer control panel. Reference the Printer Manual for details on using the control panel.

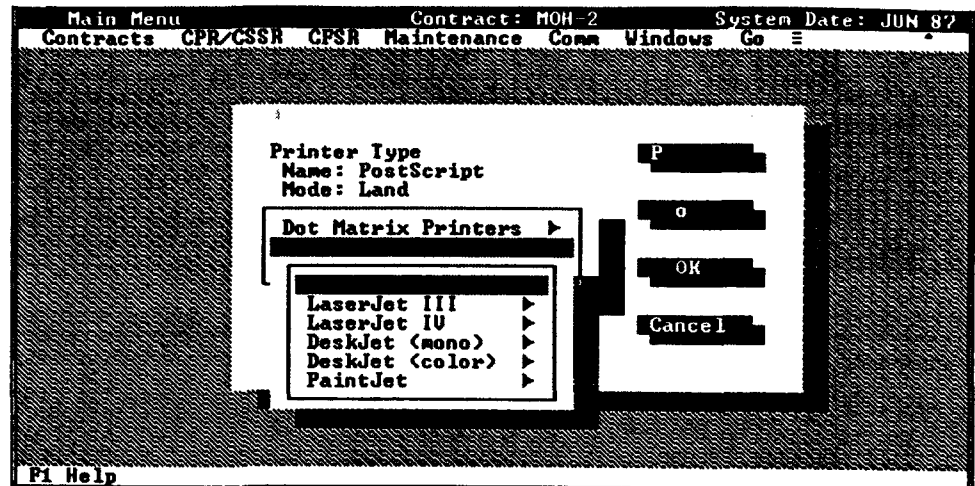


Figure 5-4

The current port settings are also displayed in the printer setup dialog box. If you want to change the port settings select the **Port** button and the output port setup dialog will appear (Figure 5-3). From this dialog box you will be able to identify the port to be used, the baud rate, the parity (if any), the number of data and stop bits, the handshake method, and whether the output is to be saved to a file.

Selecting **File** from the Output Port Setup dialog box will save your PA graphs to an HPGL graphics file format. The HPGL file can be used for import into other graphics programs or plotted with the plot HPGL utility (Appendix B). You will be prompted for a file name for the HPGL files at the time of plotting a chart.

If you are unsure which settings you should use, refer to your hardware manual or consult your database administrator.

Plotter Setup

The Plotter Setup dialog box shows the current plotter type and its resolution (e.g., Draft PL, LQPL). From this dialog box you can specify (or change) the type of plotter you have and its port settings. Select the **Plotter** button to change the plotter type.

When you select the **Plotter** button, a sub-menu containing a list of the name and model of the specific plotters supported by PA.(Figure 5-5) After you identify the plotter that you are using (e.g., HP 7475), a second sub-menu will appear where you can specify the resolution of the output. All of the plotters supported by PA support up to 16 colors. It should be noted

that the higher the resolution of the plot the longer it will take to generate it. Table 5-2 identifies the different plot sizes and resolutions available for the different plotters supported by PA.

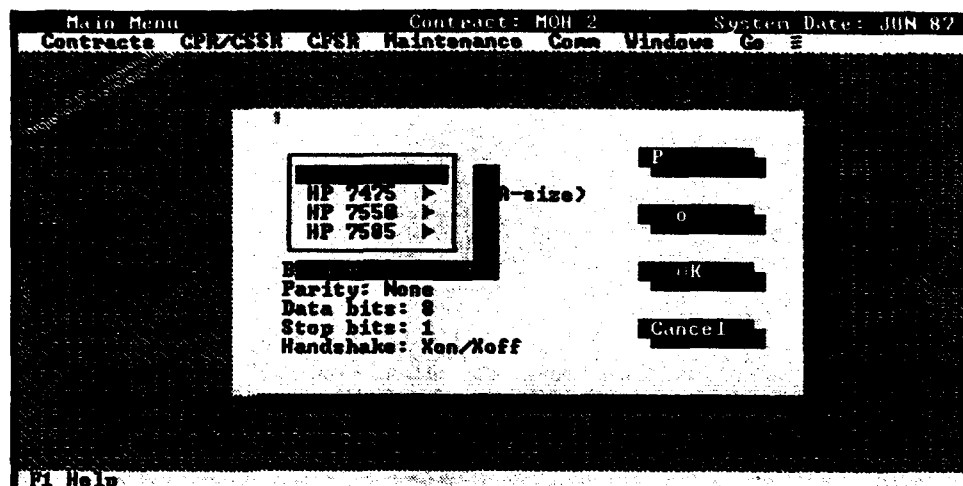


Figure 5-5

MODEL	CODE	SIZE(dots)	SIZE OF PLOT (inches)
HP 7470	Draft PL	10000 x 7200	10.00 x 7.20
	LQPL	10000 x 7200	10.00 x 7.20
HP 7475 HP7550	DraftPL	10000 x 7200	10.00 x 7.20
	LQPL	10000 x 7200	10.00 x 7.20
	DraftPLB	15200 x 10000	15.20 x 10.00
	LQPLB	15200 x 10000	15.20 x 10.00
	DraftPLr	7200 x 10000	7.20 x 10.00
	LQPLr	7200 x 10000	7.20 x 10.00
	DraftPLBr	10000 x 15200	10.00 x 15.20
	LQPLBr	10000 x 15200	10.00 x 15.20
HP 7585	DraftPL	5580 x 9000	5.58 x 9.00
	LQPL	5580 x 9000	5.58 x 9.00
	DraftPLB	14200 x 9000	14.20 x 9.00
	LQPLB	14200 x 9000	14.20 x 9.00
	DraftPLC	14180 x 20150	14.18 x 20.15
	LQPLB	14180 x 20150	14.18 x 20.15
	DraftPLD	21420 x 20120	31.42 x 20.12
	LQPLD	21420 x 20120	31.42 x 20.12
	DraftPLE	20840 x 16180	41.68 x 32.36
	LQPLE	20840 x 16180	41.68 x 32.36

Table 5-2 Plotter, Plot Sizes and Resolutions

Selecting **File** from the Output Port Setup dialog box will save your PA graphs to a disk file in the format of the selected plotter. Depending on the format, the resulting file can be used for import into other graphics programs or plotted with the plot HPGL utility (Appendix B). You will be prompted for a path and a file name for the HPGL files at the time of plotting a chart. The export process will take approximately one minute.

The pens on the selected plotters must be installed as follows:

<u>Pen</u>	<u>Color</u>
1.....	Black
2.....	Blue
3.....	Green
4.....	Red
5.....	Yellow

If you are unsure which settings you should use, refer to your hardware manuals or consult your database administrator.

Modem Setup

This option is used to set the modem defaults for communications with systems via a modem (Figure 5-6). PA supports Hayes compatible modems with auto answer capability. The modem must have the AT Command set to auto answer. For example, ATSO = x where x is the number of rings before answering. PA does not support manual answer modems.

The source and target computers must have identical baud rates, parity, data bits, and stop bits for the transfer to occur. For each computer, the communications port setting identifies the port where the modem is attached. PA supports COM ports 1 and 2.

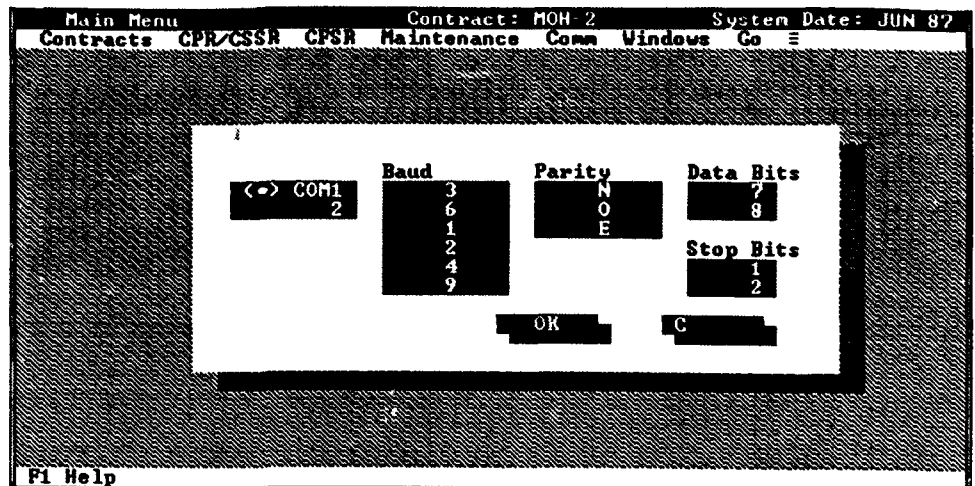


Figure 5-6

Colors

The Colors Dialog box displays the colors of the various PA screens such as menus, backgrounds, etc., as displayed in Figure 5-7. A "•" in the Foreground and Background sections indicates the current color setting. Use the **Tab** key to move between sections of the dialog box. Use the **Arrow** keys to move between the options within a section. Use the **Enter** key or **OK** radio button to accept all settings. All colors can be set back to their default values by selecting the **Default** radio button.

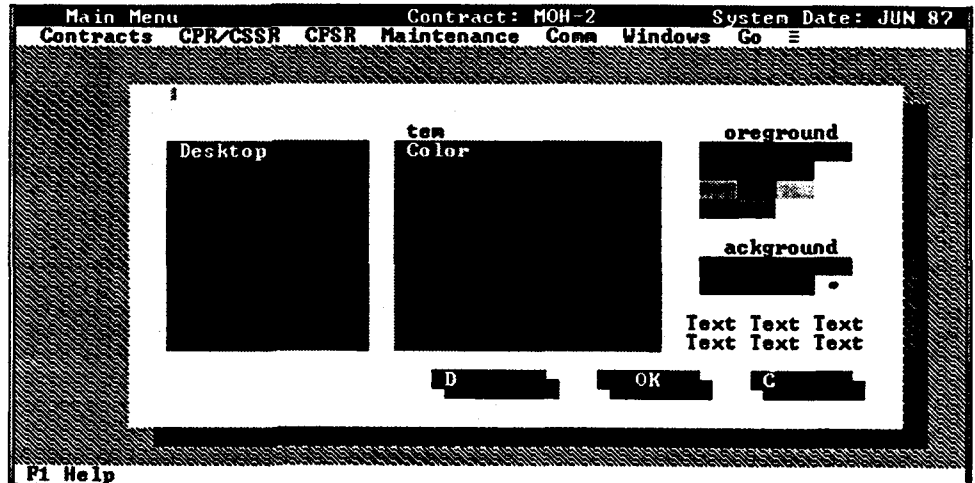


Figure 5-7

Change Password

This menu option will be available only if PA has been configured for password protection by a Supervisor. This menu option lets you change your password for your user name only. The PA Supervisor will issue the initial password but you have the option of changing the password at your discretion.

When you select **Change Password**, a dialog box will appear and prompt you to enter the new password (Figure 5-8). As part of the security features of PA, as you enter your new password, it will not display on the

monitor. After you have entered the new password, you will be requested to confirm the new password by reentering it. Use this method for all locations where you must establish a user name and password.

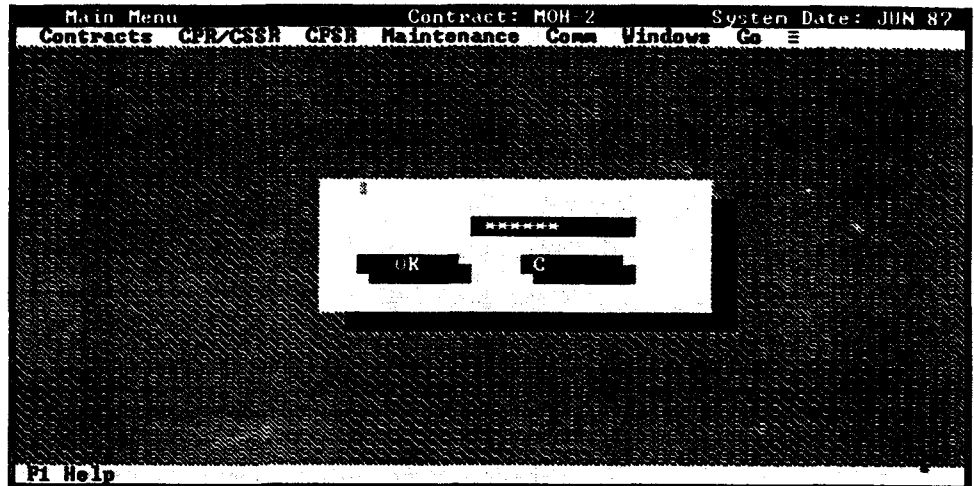


Figure 5-8

5.2 SUPERVISOR UTILITIES/SECURITY

Performance Analyzer may be utilized by multiple users with different access rights. In order to do so a supervisor must be designated to perform specific duties. Supervisor duties are critical for the protection of data when PA is used in a multi-user mode. The supervisor is responsible for identifying users, designating access rights, and controlling the system lockout feature.

This section discusses the responsibilities of the supervisor (Figure 5-9).

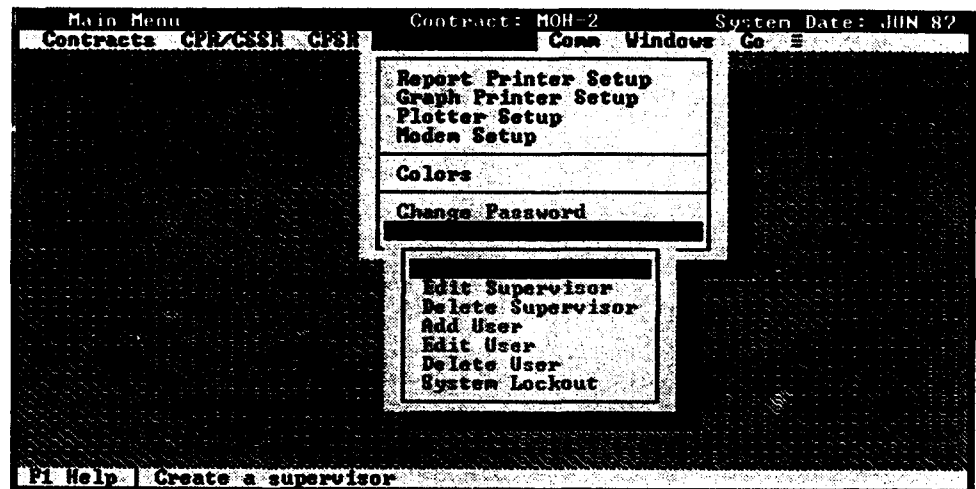


Figure 5-9

Access Levels

Passwords are incorporated at the system level and allow the sharing of data without risking the integrity of the data. PA supports four levels of access to contract data and PA functions. **The system is not password protected until the Supervisor is established.** Once a Supervisor is established, user name and passwords must be entered each time the PA is started. Note that the Supervisor can protect CPR data without having to issue Read Only passwords by utilizing the Lock feature of PA (see System Lockout below). *Don't forget your password!*

PA allows a Supervisor to specify each user's access privilege on a contract-by-contract basis. Thus, a user can have Read/Write access to one contract, Read only access to another, and no access to a third contract, if desired. The three types of user access privileges in the PA are briefly discussed below.

Supervisor - The supervisor has unlimited Read/Write access to all contracts, grants access rights to users for individual contracts (Read/Write or Read Only), adds new users to the system, and controls a system lockout feature which makes PA a Read Only system for all users.

Read/Write - Read/Write access is granted on a contract-by-contract basis. This access allows the user to edit all contract information. **Any user who creates a contract automatically has Read/Write access to that contract.**

Read Only - Read only access allows users to only view PA data for a given contract. Note that users with this access privilege can change the SPO EAC at the lowest level of the WBS and Functional Structure, but cannot change any CPR data or data that will affect PMR charts or automated data transfer.

No access prevents a user (except the Supervisor) from accessing a contract.

NOTE: Access levels are set by contract in the Add/Edit User dialog boxes. See the Add, Edit or Delete section for details on changing access levels.

Create, Edit, or Delete Supervisor

When you create a Supervisor, system password protection for PA is established. Only one supervisor is permitted for PA. When a supervisor is created for PA the Create Supervisor menu option is dimmed (and thus is disabled). **You will not be able to select this menu option until the current supervisor is deleted.** You must supply both a Name and Password to create a supervisor.

The **Edit Supervisor** option provides you with the capability to change the Supervisor name and password. When you select this menu option, a dialog box will appear and prompt you to enter the new Supervisor name and password. As part of the security features of PA, as you enter your new password, it will not display on the monitor. After you have entered the new password, you will be requested to confirm the new password by reentering it.

The **Delete Supervisor** option disables the system security features. Once disabled, anyone can access and change any contract. Adding a Supervisor back into the system, via the Create Supervisor menu option, restores the user password protection. The user names and passwords that you previously established are restored once the Supervisor is reinstated in PA.

Add, Edit or Delete User

The **Add User** option allows the Supervisor to add a new user to PA by establishing a user name and password in (Figure 5-10). You must supply both a name and password to add a user.

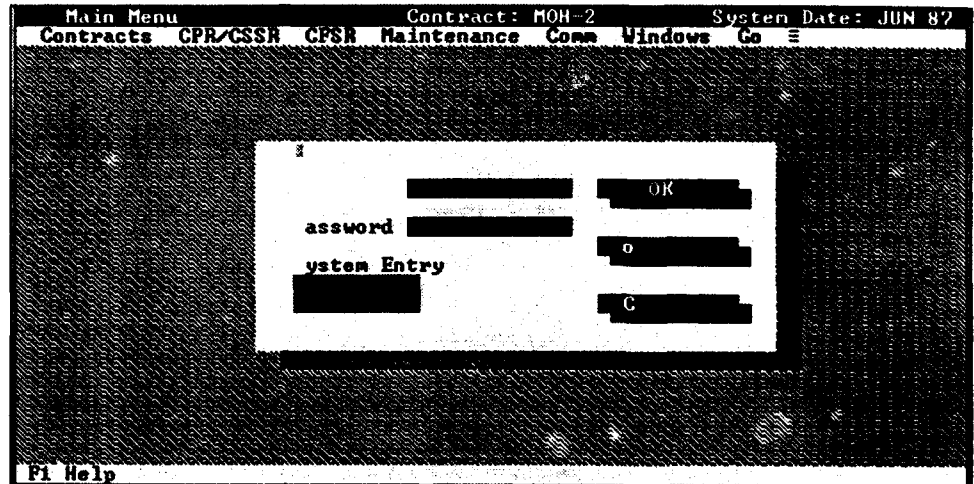


Figure 5-10

The Supervisor must also set the user's access rights to each contract currently in PA (i.e., Read/Write, Read Only, or None). This is accomplished by selecting the **Contracts** radio button from the New User dialog box.

Upon selecting contracts, the Contract list appears (Figure 5-11). The contract list displays the all of the contracts in PA and their rights level for the current user. Use the **Arrow** keys to move to a contract. Use the **Tab** key to move to the access rights column (the second column). Use the **Space Bar** key to toggle between the three access privilege options (i.e., R = Read Only, W = Read/ Write, Blank = no access).

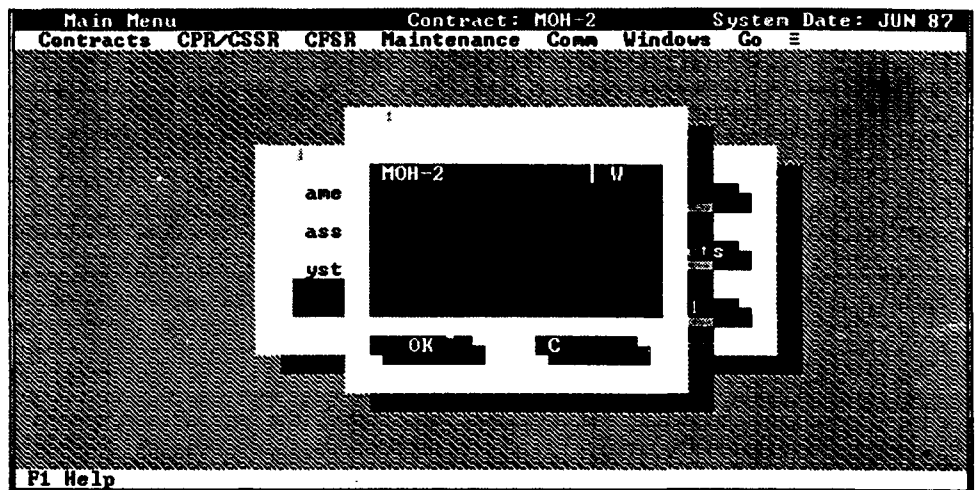


Figure 5-11

The **Edit User** option allows the Supervisor to change user names, passwords and privileges. You may change your own password; but only the Supervisor may change user names and access privileges.

The **Delete User** option allows the supervisor to delete a user from the PA. Only the supervisor can access this option.

System Lockout

The System Lockout feature allows the Supervisor to “lock” the system, allowing users only Read access to the PA data. Locking the PA does not change the access settings previously established by the Supervisor. It simply overrides them.

Chapter 6: COMMUNICATIONS

6.1 COMMUNICATIONS

When you select the **Comm**(unications) menu bar option, the pull-down menu shown in Figure 6-1 will be displayed. The Communications pull-down menu provides functions that will let you transfer data electronically (contract(s) or automated transfer files) from one organization to another via a modem. For future reference, the computer sending the data will be referred to as the "source," whereas the computer receiving the data will be referred to as the "target." Before initiating transfer of data from the source computer, the modem settings must be updated (refer to Modem Setup in Chapter 5, Maintenance). Modem settings must match exactly between the source and target computers (except for the communications port).

NOTE: PA v4.0 supports COM ports 1 and 2. For more details on modem setup, refer to *Section 5.1 Setup Options*.

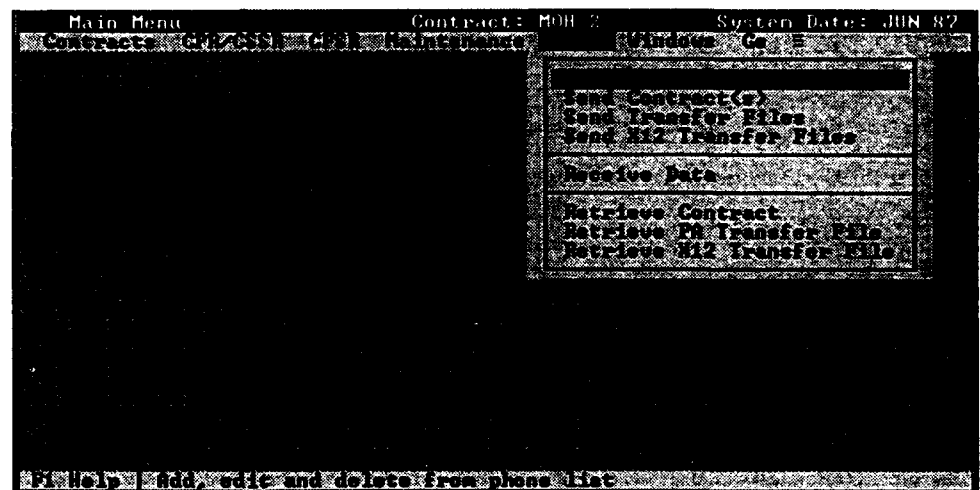


Figure 6-1

Phone Book

Phone Book entries are used to store the name and phone number of PA target sites. Select the **Insert** radio button to add a new site, the **Delete** button to delete an existing site, and the **Edit** radio button to edit an existing entry (Figure 6-2). When entering phone numbers in the Phone Book, the following inputs are valid:

<u>Input</u>	<u>Description</u>
0-9 # * - A B C D	Digits/characters for dialing
W	Wait for dial tone
, (comma)	Delay processing of next character

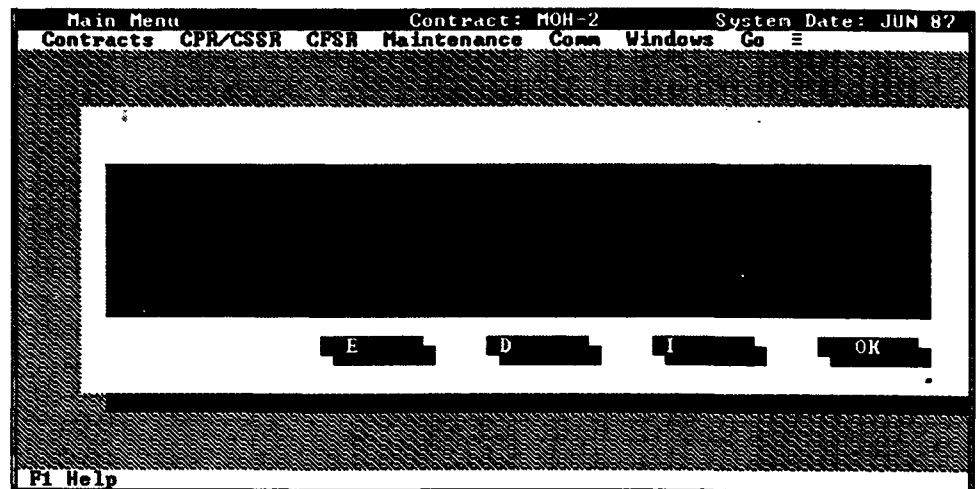


Figure 6-2

The digits/characters "0-9, #, *, -, A, B, C, D" are used to specify the number to dial. The characters "A, B, C, D, #, *" represent specific tone pairs and, therefore, can be used only when tone dialing is selected. These symbols are ignored if included in a telephone number dialed with the pulse method. Letters other than "A, B, C, D" are not acceptable. Refer to the Hayes Modem User Manual for more information on digits and characters.

The "W" dial modifier instructs the modem to wait for a dial tone before proceeding. If a dial tone is not detected within 30 seconds, the modem hangs up.

The comma "," modifier in a dial string causes the modem to pause for two seconds before processing the next character or symbol in the command line. The comma is frequently inserted after the "9" (the digit which is generally used to gain outside access from a PBX) to allow sufficient time for the dial tone to occur before the modem dials the telephone number. Multiple commas can be used to produce longer pauses (e.g., three commas would produce a 6-second pause). *Refer to your modem manual for specific usage of pause characters. Your modem may use a different character!*

NOTE: Extra spaces in the phone number entry may cause the modem to dial the phone number incorrectly. If you are experiencing problems with the modem connecting to your target destination, check your phone number entry.

Send Contract(s)

The Send Contract(s) option is used to send one or more contracts to another PA installation. This option will send the entire contract and all associated files for each contract that is selected.

A dialog box will appear when you select this menu option (Figure 6-3). The dialog box will display the contracts that are available for export and the destination of the files to be exported (e.g.; target PA installation). As you select a contract that is listed in the **Available** section of the dialog box, it will automatically move to the **Selected** section of the dialog box.

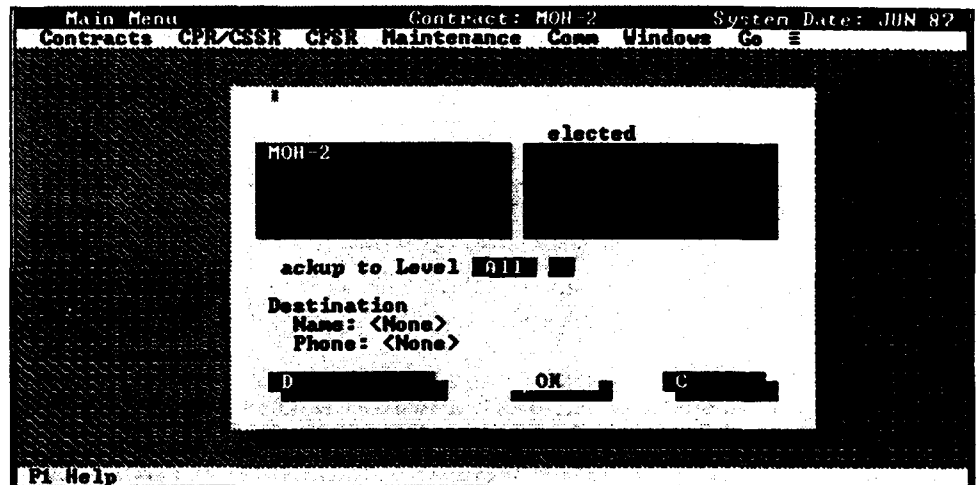


Figure 6-3

Select the **Destination** button in the dialog box to change the destination of the files. A list of defined target sites (defined via the Phone Book menu option) will be displayed (Figure 6-4). Highlight the desired target site and press the **Enter** key.

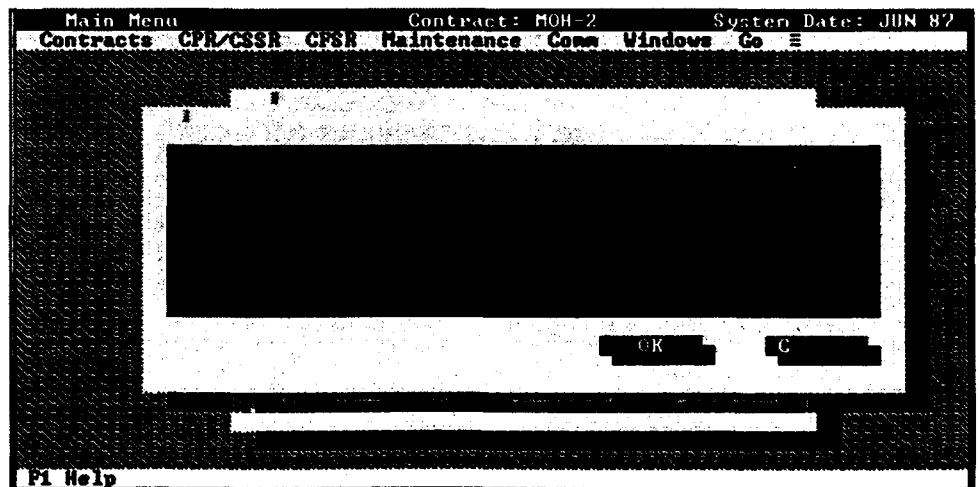


Figure 6-4

Once all contracts have been marked, select the **OK** button to initiate the

transfer. Remember, the target computer must be set in the Receive mode. The PA will compress and then send all files in the subdirectory associated with the selected contract(s). All files in the marked contract subdirectory will be combined into a single compressed file. The file name is derived from the first eight characters of the contract name with a .LZH file extension (e.g., if contract name is MOH-2, then file name would be MOH-2.LZH). PA will create one .LZH file for each contract that is selected.

Once the contract(s) you selected is (are) compressed, the screen will display three messages in the lower right-hand corner of the screen: Dialing ..., Connected..., and Sending ...

Contract files are automatically stored on the target computer in a directory (under the subdirectory used to store the PA executable files) named COMM.DIR (e.g., C:\PA\COMM.DIR). If a file by the same name exists on the target computer in the COMM.DIR subdirectory, the transfer file will overwrite the existing file.

When the transfer is complete, a message will appear and then PA will return you to the Send Contracts dialog box.

Send Transfer File

The Send Transfer File option is used to send the monthly data of a contract to another PA installation via the PA Automated Transfer File format. When you transfer a file to another PA site, the file is **not** deleted from your computer, you are only copying the information to the other PA site. A dialog box used to identify the contract to send (Figure 6-5).

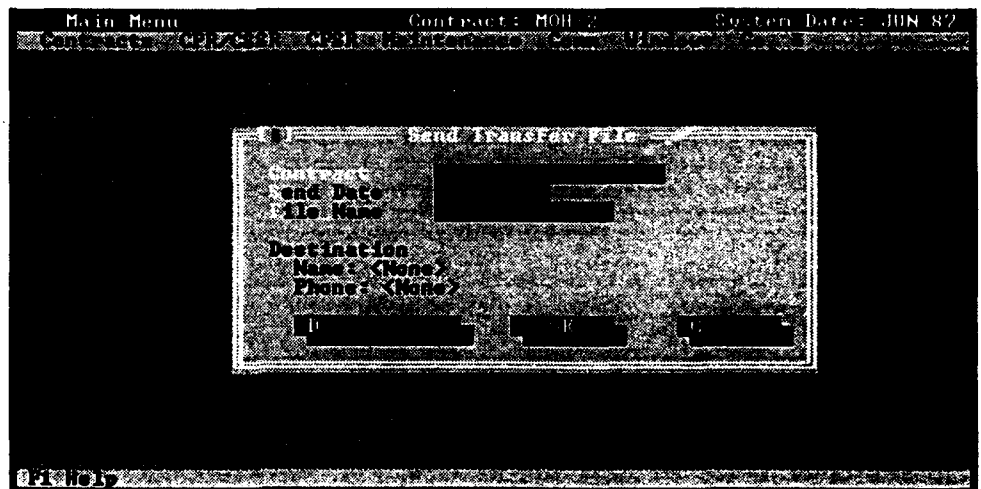


Figure 6-5

Press **Enter** or **Double Click** the mouse while in the Contract field and a list will appear displaying the contracts that are available for export.

Highlight a contract and press the **Enter** key to select the contract. Perform this same procedure while in the Send Date field to select the date of the data to send. You must then enter a name for the transfer file in the File Name field.

To change the destination of the files select the **Destination** button in the dialog box. A list of defined target sites (defined via the Phone Book menu option) will be displayed. Highlight the desired target site and press the **Enter** key.

Select the **OK** button to initiate the transfer. Remember, the target computer must be set in the Receive mode. The PA will then create and send the transfer file. Appendix C contains the specification for the transfer file.

Once the data for the contract you selected is saved in a transfer file, the screen will display three messages in the lower right-hand corner of the screen: Dialing ..., Connected..., and Sending ...

The transferred file is automatically stored on the target computer in a directory (under the subdirectory used to store the PA executable files) named COMM.DIR (e.g., C:\PA\COMM.DIR). If a file by the same name exists on the target computer in the COMM.DIR subdirectory, the transfer file will overwrite the existing file.

When the transfer is complete, a message will appear and then PA will return you to the Send Transfer Files dialog box.

Send X12 Transfer File

This option is used to send monthly contract data with its contract header information via a file conforming to the ANSI ASC X12 standard for EDI. The format is specifically for the ANSI X12 839 Project Cost Reporting transaction set.

The "source" sends a file containing the contract header information (e.g., contract name, contract number, contractor, etc) and one month of data. The "target" machine receives the file and loads it into PA. If the contract does NOT already exist, PA will add it to the target's PA database. If the contract exists in the target's PA database, PA will add the new month of data to the existing contract. PA will also overwrite the existing contract header information with the matching incoming file information.

<p>NOTE: Refer to Appendix E ANSI X12 839 Standards for specific information (e.g. file layout, data elements, assumptions, etc.) on this file.</p>
--

The operation of this PA feature is the same as for the Send PA Transfer File option discussed in the previous section.

Receive Data

This option places PA in the Receive mode. This will allow other PA sites to send contracts and/or transfer files to you. Placing the PA in the Receive mode instructs the PA to automatically answer the phone and hang-up when the data transfer is complete. Before trying to receive PA data, ensure that the modem settings (defined in the **Modem Setup** option of the Maintenance pull-down menu) match those of the source computer.

When PA is in the Receive mode the message "Waiting ..." is displayed in the lower left corner of the screen. After completing a transfer session, PA will return to the Receive mode and wait for the next call. Press the **Ctrl+Break** keys to exit the Receive mode.

All of the transferred contracts/files are stored in a directory (under the subdirectory used to store the PA executable files) named COMM.DIR (e.g., C:\PA\COMM.DIR). The files are not deleted and should be periodically removed via DOS commands. If a file by the same name exists on the target computer in the COMM.DIR subdirectory, the file being transferred will overwrite the existing file. The file name for a transferred contract is derived from the first eight characters of the contract name with a .LZH file extension (e.g., MOH-2.LZH). Transfer files (as opposed to contracts) received by the target computer will have the same file name as the files on the source computer, are not compressed, and have a .TRN file extension.

Retrieve Contract

The **Retrieve Contract** option displays the list of contracts that have been transferred to the system. A dialog box will appear when you select this menu option that displays the contracts that are available for retrieval and the location of those compressed contract files.

Transferred contract files are automatically stored on a target computer in a directory (under the subdirectory used to store the PA executable files) named COMM.DIR (e.g., C:\PA\COMM.DIR). If you want PA to look elsewhere or display different files, enter a new path and/or file name default in the Name field. Otherwise, press the **Tab** key to move the Files section of the dialog box and select the name of the contract to be retrieved.

The PA will examine the file and determine which contract the data belongs to. If the selected contract matches an existing one, PA will prompt you to confirm where the selected contract is to be stored. If you agree select the **Yes** radio button, if not select the **No** or **Cancel** radio buttons. If a contract match is not found, a new contract will be added to the database. Retrieving a contract may take several minutes, depending on the size of the contract.

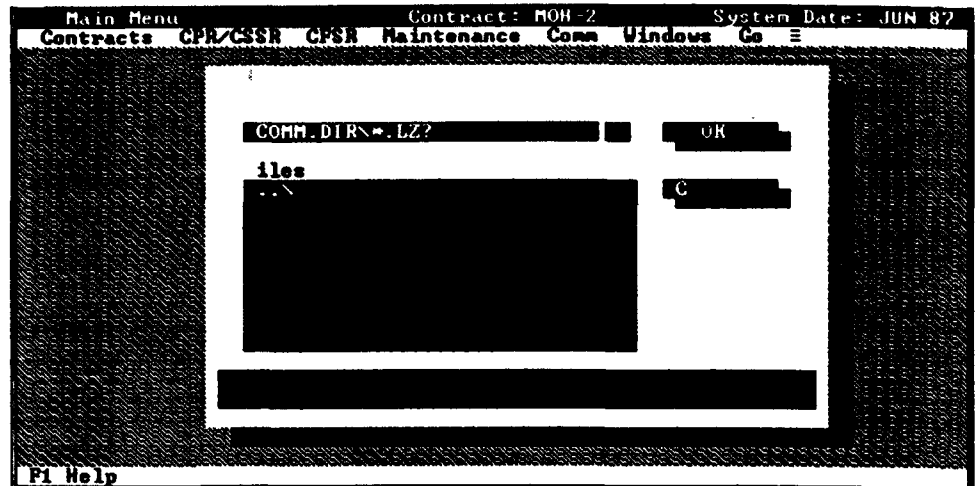


Figure 6-6

Retrieve PA Transfer File

The **Retrieve PA Transfer File** option displays the list of PA Automated Transfer Files that have been transferred to the system. A dialog box similar to the one in Figure 6-6 will display a pick list of all files that are candidates for retrieval into PA.

Transferred files are automatically stored on a target computer in a directory (under the subdirectory used to store the PA executable files) named **COMM.DIR** (e.g., **C:\PA\COMM.DIR**). If you want PA to look elsewhere or display different files, enter a new path and/or file name default in the **Name** field.

You can select the file to retrieve in one of two ways. First, you can type the file name in the **Name** field and select the **OK** button. The file name field contains ***,*** as its default. The file name field provides a dual function. It determines the files that are to be listed in the pick list, (thus the reason for the ***,*** default value) and it lets you identify the file to be retrieved by typing in the file name. You may enter DOS wild card characters (e.g. ***.txt**) to have the pick list present files of a specified type. Second, you can press the **Tab** key to access the pick list, highlight the file you want to retrieve, and press the **Enter** key.

Once the Transfer File has been selected, PA will perform error checks, create an error report, and inform you of the results (Figure 6-7). The error report lists any problems associated with the Transfer File, such as **WBS/Functional Structure incompatibilities**, **incorrect totals**, etc. Select the **View Log** radio button to review the error report.

Once you have reviewed the error report, you must decide whether or not to complete the Retrieve Transfer File process. To complete this process and update the contract with the data from the Transfer File, you must select the **Import** radio button. Otherwise, select the **Cancel** radio button to terminate the import process.

Retrieve X12 Transfer File

This option is used to retrieve contract data from a file conforming to the ANSI ASC X12 standard for EDI. The format is specifically for the ANSI X12 839 Project Cost Reporting transaction set. The operation of this PA feature is the same as for the Retrieve PA Transfer File option discussed in the previous section.

NOTE: Refer to Appendix E ANSI X12 839 Standards for specific information (e.g. file layout, data elements, assumptions, etc.) on this file.

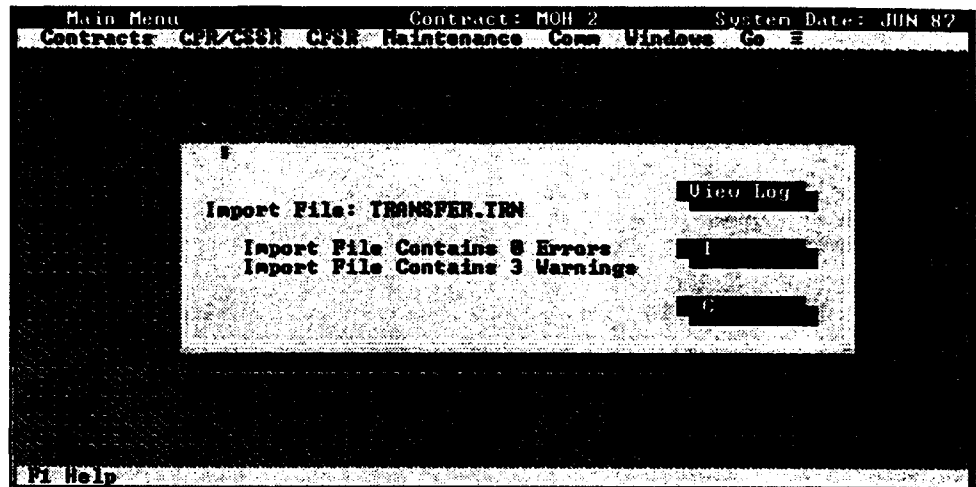


Figure 6-7

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Chapter 7: ANALYSIS MENU BAR

7.1 ANALYSIS MENU BAR

The Analysis menu bar is designed to provide a Cost Performance analysis tool for analysts, engineers, and managers. It is accessed by selecting the **Go** pull-down menu from the menu bar and selecting the **Analysis** menu option. The Analysis module utilizes a visual approach to evaluate the WBS with on-screen performance indicators to identify out-of-tolerance elements as shown in Figure 7-1.

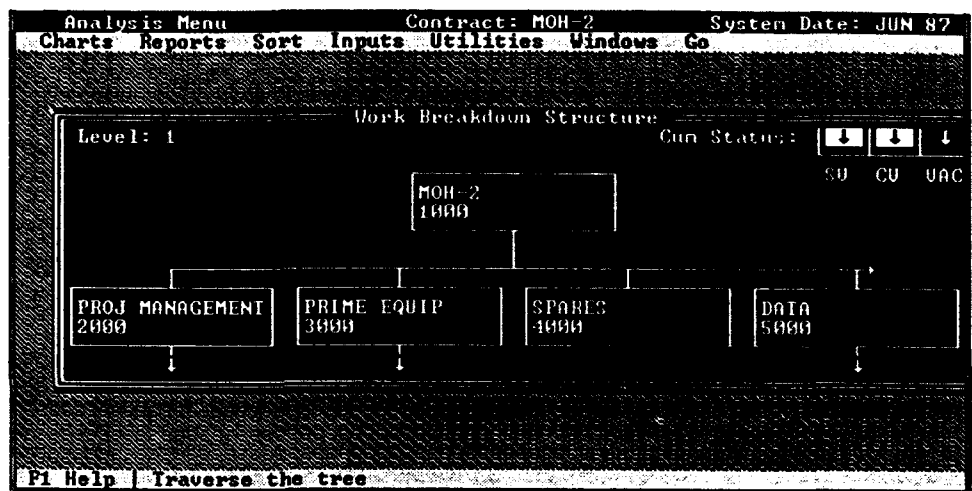


Figure 7-1

Performance Indicators

The performance measurement coding scheme is designed to quickly communicate the performance status of each element and the trend since the previous month. The colors and trend arrows located in the upper right corner of the screen are based upon cumulative or current month variance percentages. The status message will indicate whether the colors are based on cumulative or current month data (See Figure 8-1).

For example, a down arrow in the Cost Variance (CV) box indicates that the cumulative cost variance percentage has worsened since last month, and exceeded the change threshold you established in the Initial Contract Information. The red color in the CV box indicates that the cumulative cost variance exceeded the Probe Threshold for red (normally set at -15%). This display will vary depending on whether you have a color or monochrome system. Arrows indicate whether the trend has improved or worsened since last month. A bullet "•" indicates that there was not a significant change.

The color scheme in Table 7-1 describes the color and monochrome

conditions used throughout the Performance Analyzer.

<u>CONDITION</u>	<u>COLOR</u>	<u>MONOCHROME</u>
Unsatisfactory	Red	Inverse/Blinking
Marginal	Yellow	Normal/Blinking
Good	Green	Inverse
Too Good	Blue	Normal
Improved Since Last Month	↑	↑
Worsened Since Last Month	↓	↓
No Change Since Last Month (within %)	•	•

Table 7-1 Performance Indicator Codes

Basic Navigation

When you first enter the Analysis menu bar you will default to the WBS tree. The initial screen displays the total contract (Level-1) along with as many Level-2 elements as possible. The cursor will be located at the top level of the WBS tree (highlighted or reverse video) with the cumulative performance indicators showing for that element.

The menu bar across the top of the screen provides you a list of options. Use the **F10** key or **Alt+Bolded** letter keys to move to the option you want. For example, select **Alt / R** to access the Reports menu (Figure 7-2).

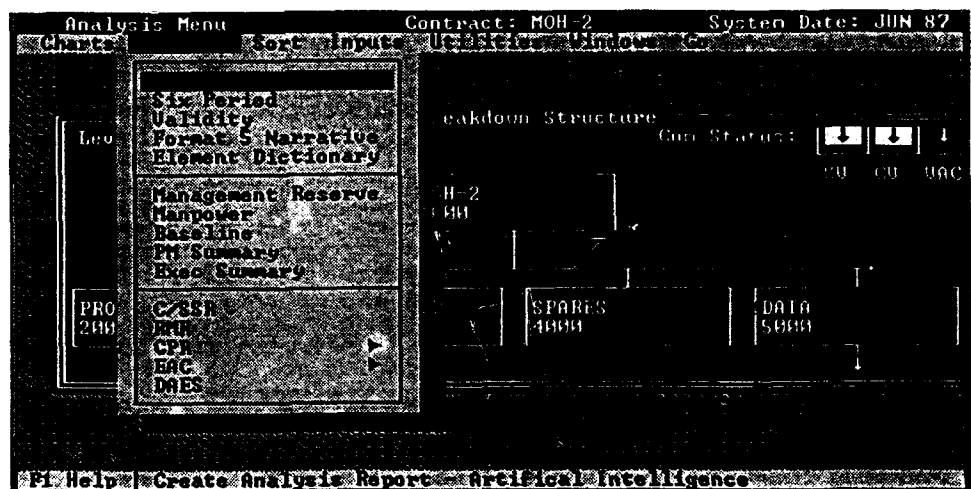


Figure 7-2

A short description of each option will appear at the bottom of the screen. Once you have the option you want highlighted, press the **Enter** key (or use the mouse) to display the pull-down menu. If an element on a pull-down menu is not available it will not be highlighted.

Once you are in the tree area you can use the **Arrow** keys to move around

the WBS/Functional tree (Figure 7-3). The **Switch** option from the Utilities pull-down menu will also let you toggle between the WBS and Functional trees.

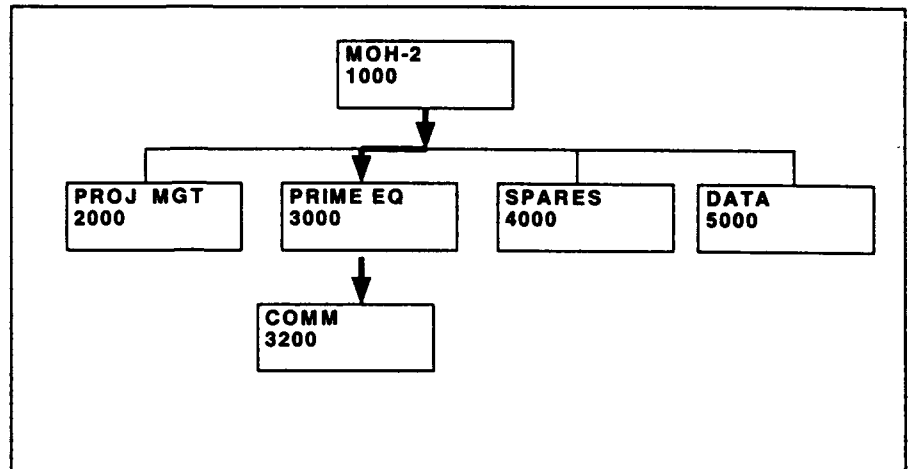


Figure 7-3

7.2 CHARTS

Selecting **Charts** from the Analysis menu bar will display the Charts pull-down menu which offers two menu options: Analysis Charts and Management Charts. **All of the Management charts and some of the Analysis Charts are available only at Level-1 of the contract.** All charts distinguish between CBB/TAB and PMB. Examples of each chart are shown in the following sections.

NOTE: *Appendix F - The Traceability Guide* contains samples of each of the reports and charts described below.

Graphs Dialog Box Options

A graphs dialog box similar to the one in (Figure 7-4) will be displayed when you have selected any chart from the Charts sub-menu. If problems are encountered while attempting to print or plot graphs, check the printer and plotter installations from the Maintenance pull-down menu on the Main menu bar. The graphs dialog box options are discussed below.

The **Screen** option displays a graph on the screen. Press the **Space Bar** to access additional graph pages. Press the **A** key to annotate a graph. (When annotating a graph, you must press the **Enter** key in order for the annotation to be accepted. Otherwise, the annotation will not appear when you print the graph. **In any event, the annotation will be removed from the graph when you return to the WBS/Functional Structure**). Press the **Esc** key twice to return to the Graphs dialog box.

The **Printer** option will print the graph to the default printer. You may print without viewing a graph.

The **Plotter** option will plot the graph to the default plotter.

You may save graphs to a **Lotus PIC File** for import into graphics packages such as Freelance. PA will supply a default drive and name for the Lotus PIC file which you can overwrite.

NOTE: The PA graph "annotation" feature and LOTUS PIC file feature may require additional conventional memory above specified 535K.

The **Range Selection** option gives you the ability to adjust the vertical range of the graph. Use the radio buttons to identify if PA is to calculate the range based upon the minimum and maximum values of the data, or if you want to specify the minimum and maximum chart values.

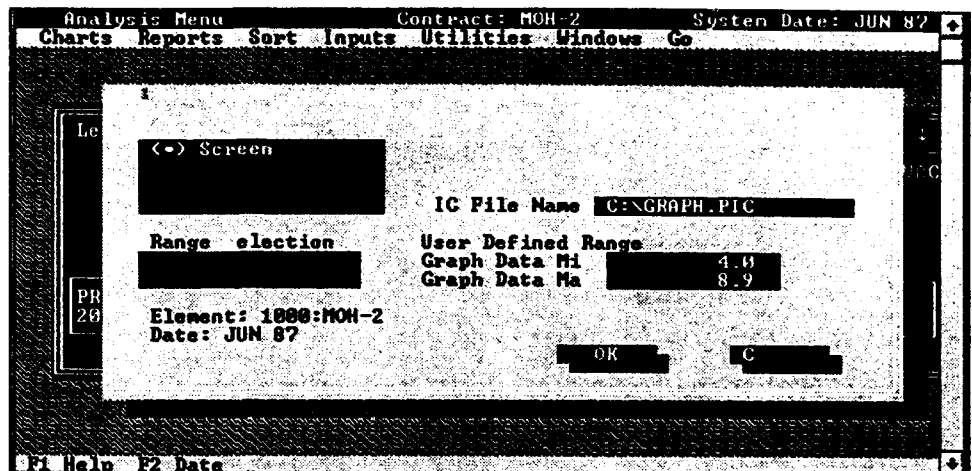


Figure 7-4

Analysis Charts

Selecting **Analysis Charts** from the Charts pull-down menu will display the Analysis Graphs sub-menu (Figure 7-5). Some of the graphs (Baseline, Management Reserve, etc.) are not available at lower levels. These graphs will not be highlighted on the sub-menu.

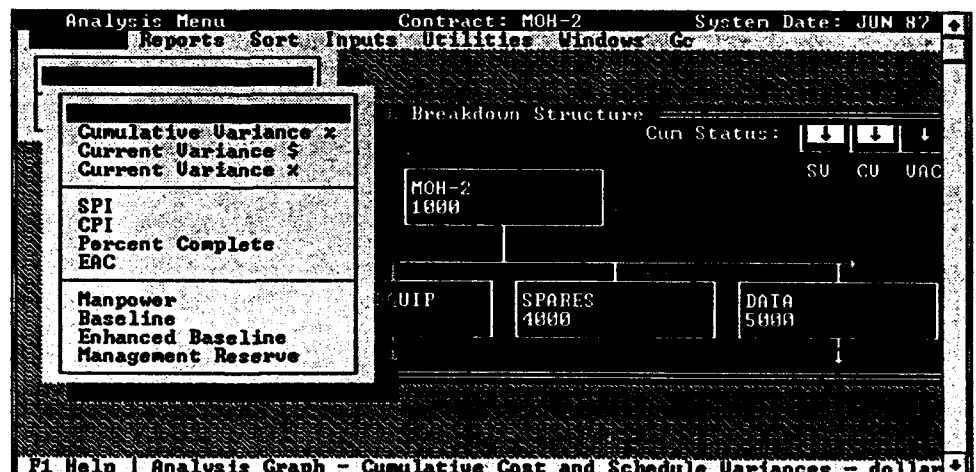


Figure 7-5

The **Cumulative Cost and Schedule Variance - Dollars** graph displays the cumulative cost and schedule variances in dollars for a selected element. It will initially display the most recent 12 months of data (Figure 7-6). You

may toggle back in 12-month increments by pressing the **Space Bar**. A cost or schedule trend that is negative indicates an unfavorable condition.

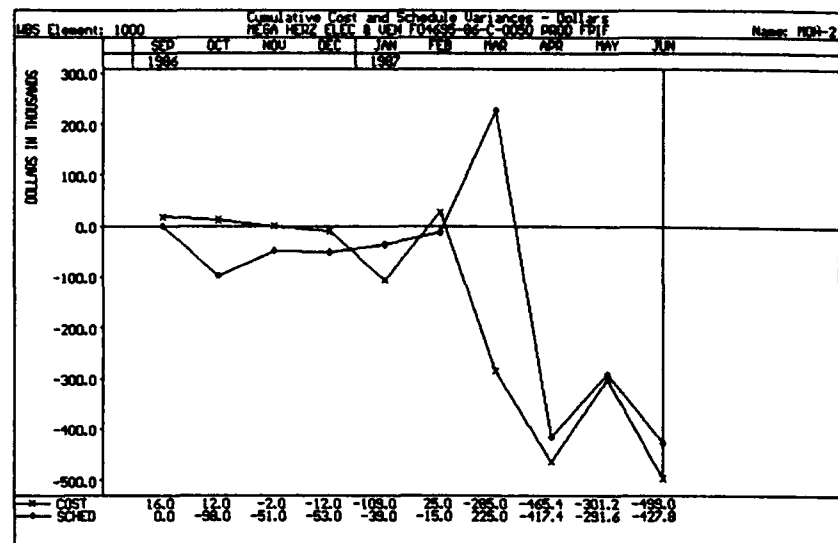


Figure 7-6

The **Cumulative Cost and Schedule Variance - Percent** graph displays the cumulative cost and schedule variances in percent for a selected element (Figure 7-7). It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. A cost or schedule trend that is negative indicates an unfavorable condition.

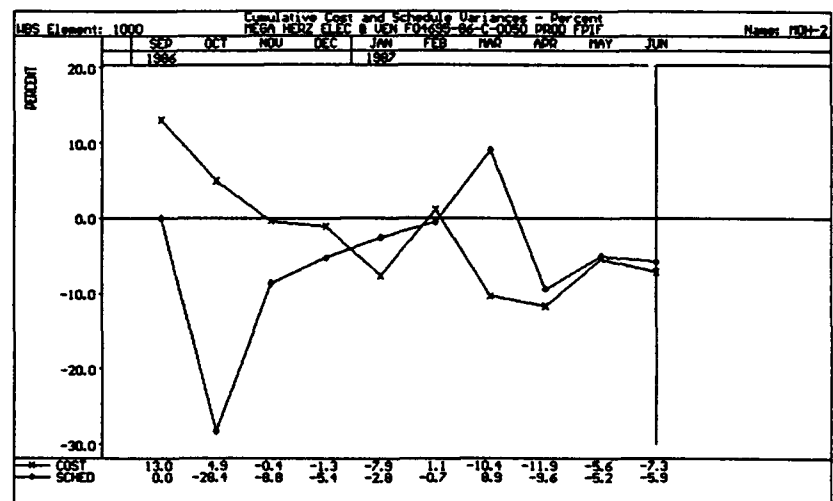


Figure 7-7

The **Current Cost and Schedule Variance - Dollars** graph displays the current month cost and schedule variances in dollars for a selected element. It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. A cost or schedule trend that is negative indicates an unfavorable condition.

The **Current Cost and Schedule Variance - Percent** graph displays the current month cost and schedule variances in percent for a selected element. (Figure 7-8). It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. A cost or schedule trend that is negative indicates an unfavorable condition.

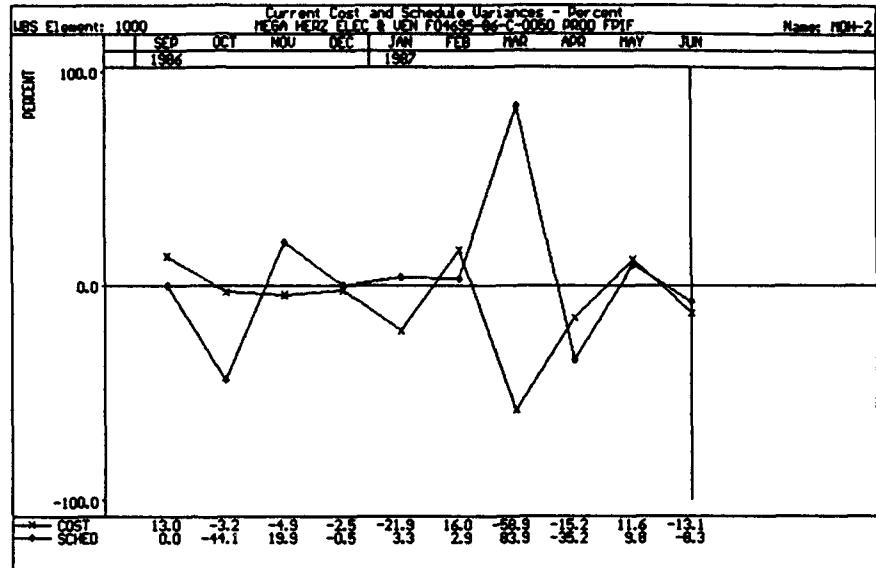


Figure 7-8

The **Schedule Performance Indices (SPI)** graph displays the cumulative and current month schedule performance index for a selected element. (Figure 7-9) It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. A schedule performance index of less than one indicates a behind-schedule condition. For example, an SPI equal to .75 indicates only 75% of the work scheduled has actually been accomplished.

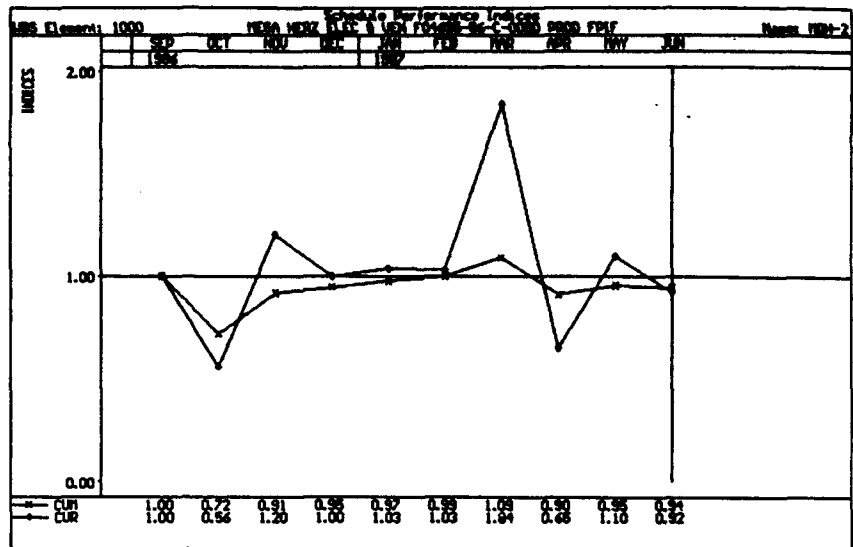


Figure 7-9

The **Cost Performance Indices (CPI)** graph displays the cumulative CPI, current month CPI, and To-Complete Performance Indices (TCPI, TC for short) for both Budget at Complete (TC-BAC) and Latest Revised Estimate (TC-LRE) for a selected element. (Figure 7-10) It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. The CPI indicates the amount of work that was completed versus the money spent.

If the CPI is less than one, it means that less work was completed than planned for the money spent. For example, if the CPI were equal to .80, it means that for every dollar spent, only \$.80 of work was completed. The TCPI indicates at what efficiency that contract must perform the work remaining to meet the BAC or LRE. Comparing the CPI (performance to date) with the TCPI (projected efficiency) is a powerful analysis tool. When the cumulative CPI varies more than .05 from the TC-LRE, the analyst should review the contractor's LRE for reasonableness.

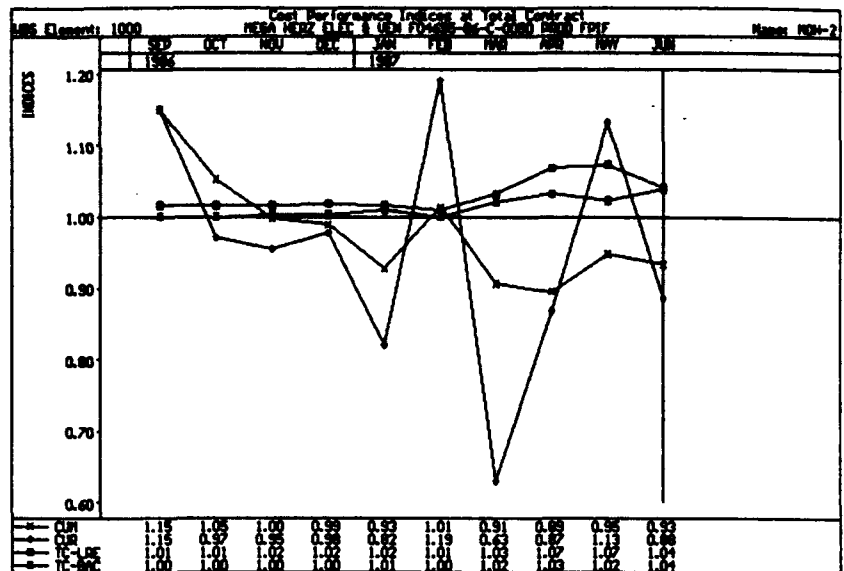


Figure 7-10

The **Percent Complete** graph displays the dollars spent (percent spent) versus the amount of work actually accomplished (percent complete) (Figure 7-11). The 45-degree angle line indicates where the markers should fall to be on cost. It does not mean the contract is on schedule. A marker below the 45-degree line indicates that the contractor is spending more money to complete the work to date than planned.

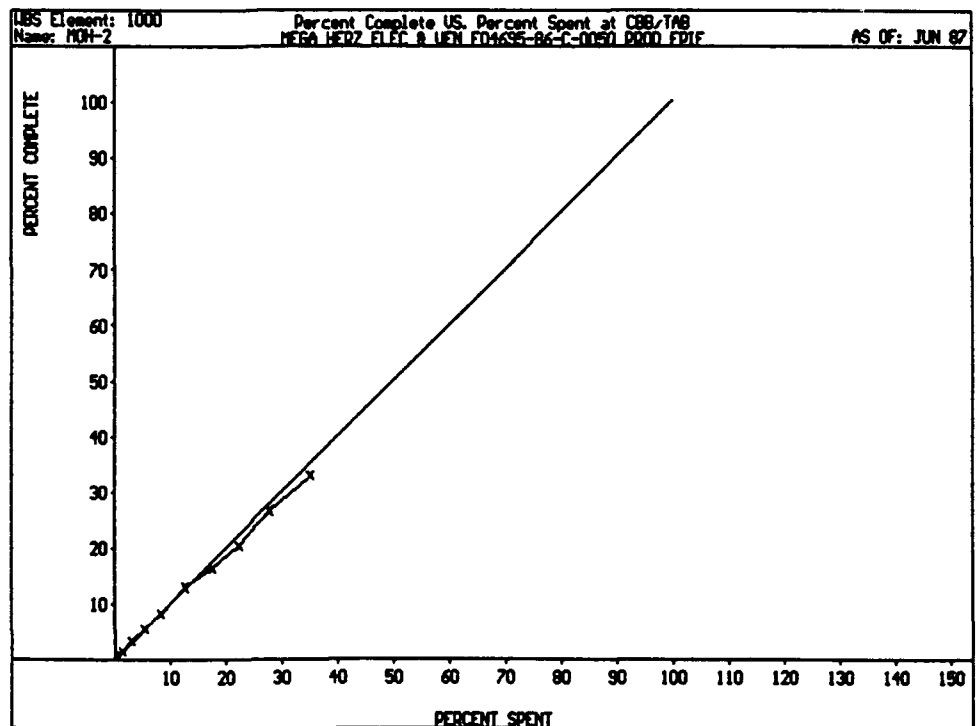


Figure 7-11

The EAC graph displays the contractor's Budget at Completion (BAC), the contractor's Latest Revised Estimate (LRE), and the cumulative cost performance index (CUM CPI) statistical forecast by default. (Figure 7-13)

You can select up to five different EACs to display on your graph. This is accomplished by selecting the EAC radio button in the Estimate at Complete dialog box and then selecting one or more of the available EACs from the EAC's dialog box (Figure 7-12).

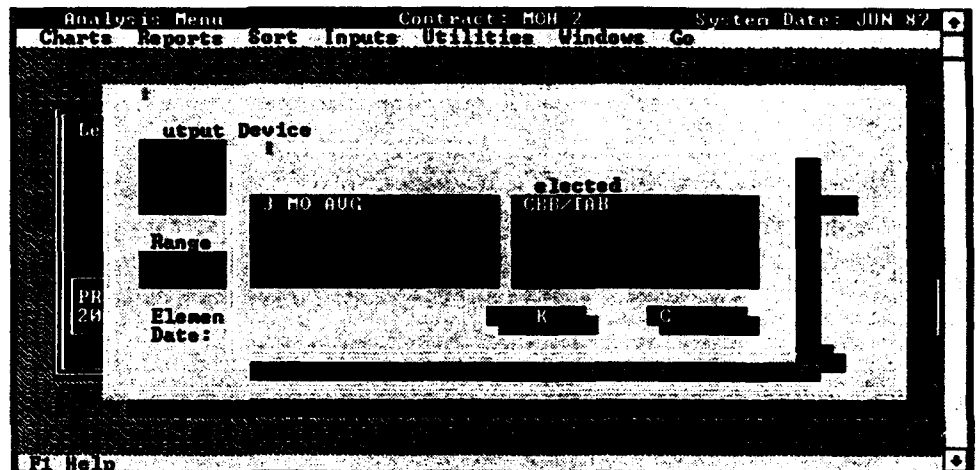


Figure 7-12

To de-select an EAC, double-click on the selected EAC or use the Tab key to highlight selected EAC and press the "↵ Enter" key.

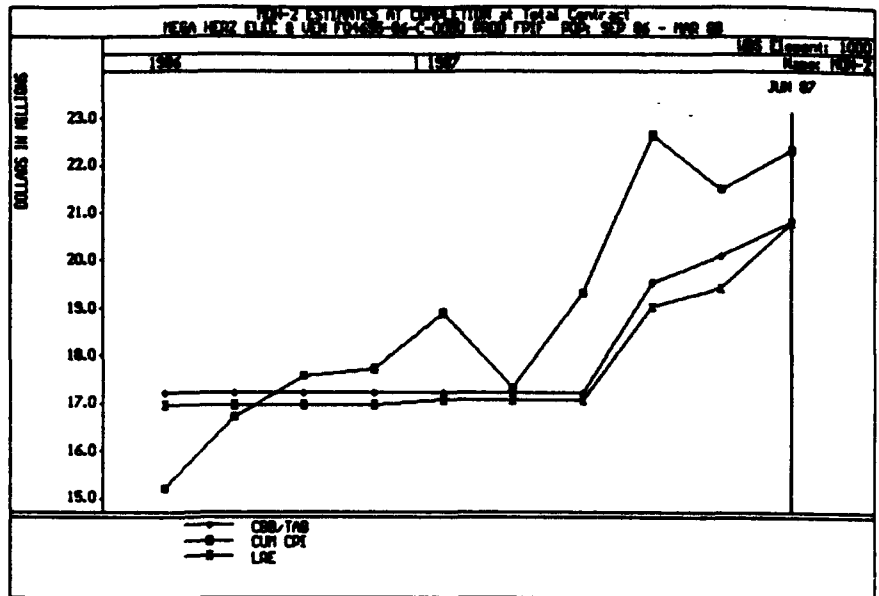


Figure 7-13

The Manpower graph displays the LRE forecast and actual manpower usage for the selected contract (Figure 7-14). It can also display the Baseline forecast. However, the default setting for the Show Baseline field is No. The graph shows the previous two months, current month, and To-Complete Manpower data on a non-cumulative basis. If you do not receive manpower data for the BAC, set the Show Baseline field to No. If you do receive manpower data, set the field to Yes. Manpower graphs are only available at Level-1 on the WBS tree. Manpower graphs are available at all levels of the Functional tree.

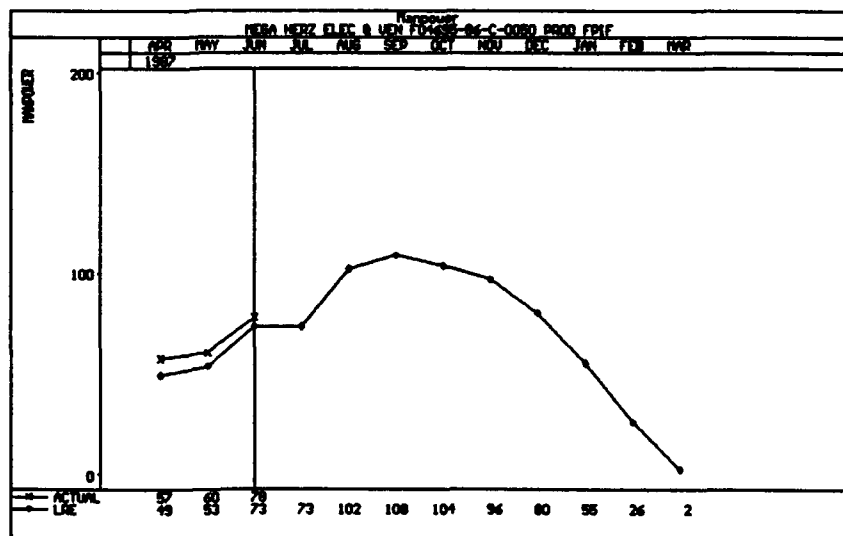


Figure 7-14

The **Baseline** graph displays the baseline for the life of the contract and the cumulative BCWS, BCWP, and ACWP to date. (Figure 7-15) Also, the graph shows the contract target cost and other data items.

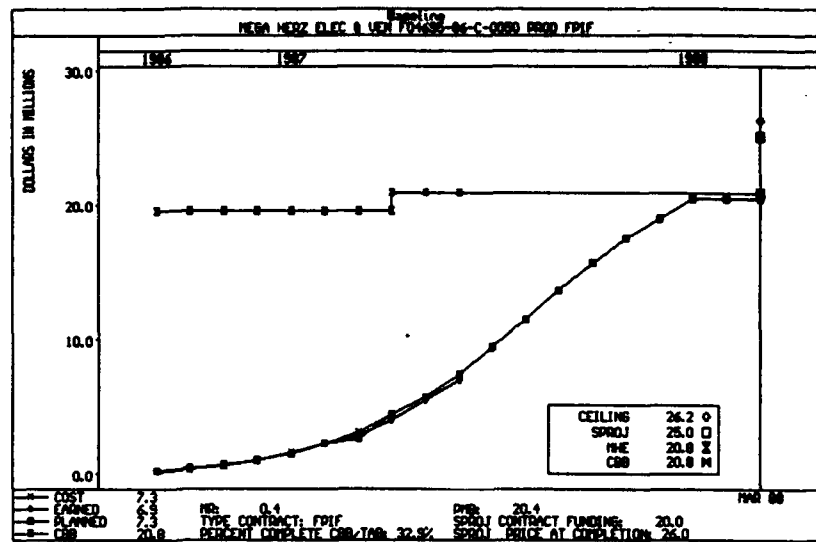


Figure 7-15

The **Enhanced Baseline** graph allows you to select up to three CPR reports and compare the baselines against one another. (Figure 7-16) This is useful to graphically portray baseline changes. You can select up to three different baseline dates to display on your graph. This is accomplished by selecting the **Dates** radio button and then selecting one or more of the available dates.

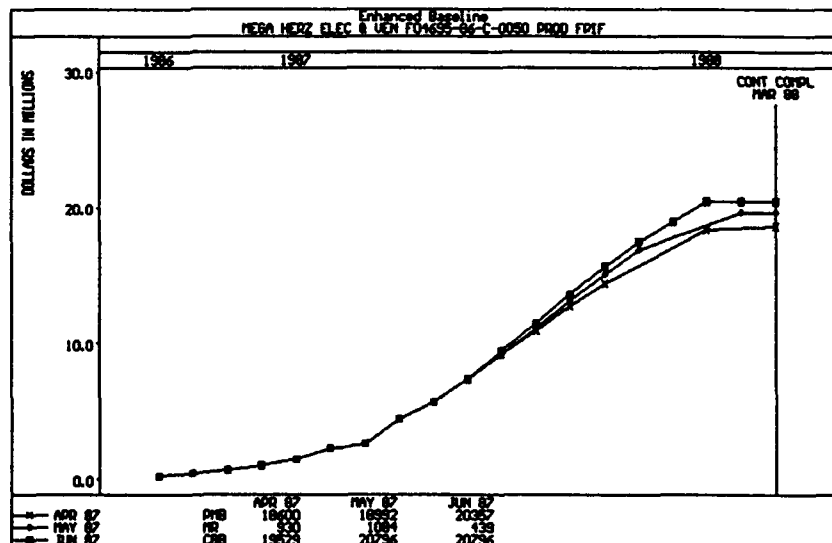


Figure 7-16

The **Management Reserve** graph displays the cumulative cost variance, Management Reserve (MR), and the summation of the cumulative cost variance and MR at the total program level. (Figure 7-17) It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**.

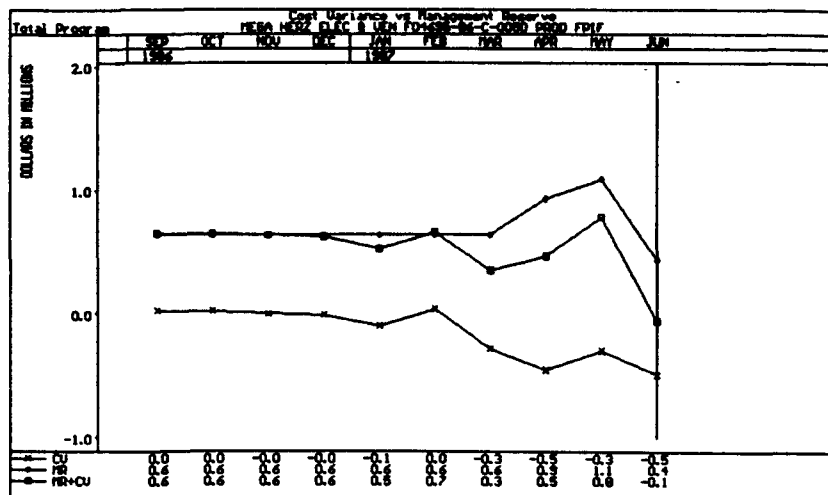


Figure 7-17

Management Charts

Selecting **Management Charts** from the Charts pull-down menu will display the Management Charts sub-menu. These graphs are not available at lower levels and will not be highlighted on the sub-menu.

The **Contractor Cost/Schedule Variance Trend** graph displays the last eight months of data and narrative PMR data. Narrative PMR data is entered in the analysis mode via the **EAC/Funding/MR** option of the Inputs pull-down menu.

The **Manpower** graph displays the LRE forecast and actual manpower usage for the selected contract. It can also display the Baseline forecast. However, the default setting for the Show Baseline field is No. The graph shows the previous two months, current month, and To-Complete Manpower data on a non-cumulative basis. If you do not receive manpower data for the BAC, set the Show Baseline field to No. If you do receive manpower data, set the field to Yes. Manpower graphs are only available at Level-1 on the WBS tree. Manpower graphs are available at all levels of the Functional tree.

The **VAC Worksheet** graph breaks down the contractor VAC, the program office VAC, and S/L (straight line) VAC (CUM CPI), and shows anticipated uses of MR. Anticipated uses of MR are entered in the analysis mode via the **EAC/Funding/MR** option of the Inputs pull-down menu.

The **Army Performance** displays the BCWS, BCWP, ACWP, from the inception of the contract to the time-now line. It also displays the EACs for the SPO, CAO, and contractor.

The **Army Cost/Schedule** graph displays the cost/schedule dollar variances from the inception of the contract and displays the projected VAC and

completion date.

The **Summary Contract Performance** graph displays the contract start date, BCWS, BCWP, ACWP, Target, PM EAC, the contractor's LRE from the inception of the contract; and the PM estimated completion date.

The Target line comes from the Contract Budget Base data you loaded in Monthly Data Input. The Start date comes from the Work Start Date you loaded in the Initial Contract Information. The Completion date and Program Manager's Estimate are entered in the analysis mode via the **EAC/Funding/MR** option of the Inputs pull-down menu.

The **Summary C/S Variance Trends** graph displays in dollars and percents the CV, SV, MR, Contract Start, and Program Manager's (PM) estimated contract completion date.

7.3 REPORTS

Selecting **Reports** from the Analysis menu bar will display the Reports pull-down menu shown in (Figure 7-18). Reports are displayed on the screen and can be output to a printer. Press the **F7** key to print the report. Press the **Esc** key to abort a print routine.

NOTE: *Appendix F - The Traceability Guide* contains samples of each of the reports and charts described below.

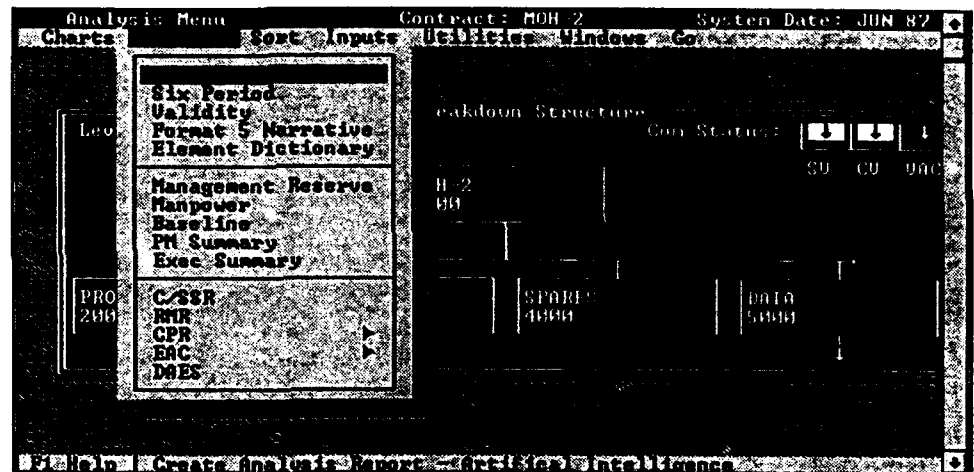


Figure 7-18

Press **Shift+F7** to save a report to an ASCII file. Once a report is saved to an ASCII file, the ASCII file can be imported into a word processing document, sent in E-Mail, edited, etc. You may print a report for any month by using the **System Date** menu option of the Utilities pull-down menu to change the current date. Some reports such as the PM Summary are available at Level-1 only. If a report is not available, the option will not be highlighted.

When at a summary level, the system defaults to Element Only (see the Branch section on the initial report dialog box) and will generate the report for that element alone. You may choose to generate the selected report for all children of the element by selecting the **All Branch** radio button.

Reports Dialog Box

A reports dialog box will be displayed when you have selected any report from the Reports sub-menu. If problems are encountered while attempting to print or plot reports, check the printer and plotter installations from the Maintenance pull-down menu on the Main menu bar. The reports dialog box options are discussed below.

The **Screen** option displays a report on the screen. Press the **Esc** key to return to the Reports Dialog box.

The **File** option allows you to send the report to an ASCII text file. If you select this option you must also provide a file name. PA will supply a default file name which you can overwrite. If the file exists, it will be overwritten.

The **Printer** option will print the report to the default printer. You may print without viewing a report.

Analysis Reports

The following Analysis reports are available:

The **Artificial Intelligence (AI)** report describes the cost and schedule status of the selected element. The rules and methods used to generate this text are consistent with those used by the Defense Systems Management College (DSMC) in its CAPPs performance measurement software version 2.1.

The **Six Period Summary** report displays the last six months of performance data and related forecasts-to-complete for a selected WBS or Functional element (Figure 7-19).

Six Period Summary - Work Breakdown Structure - Calculations at Total Contract

Report Date: JUN 87

Contract Name: MOH-2

Contract Number: F04695-86-C-0050

Contractor: MEGA HERZ ELEC & VEN

Element Code: 1000

Element Name: MOH-2

Financial Analyst: MR E. MONEY

Contract Manager: MR B. TECH

Project Officer: TROOP

Office Symbol: JMD

MONTH	JAN 87	FEB 87	MAR 87	APR 87	MAY 87	JUN 87
Current						
BCWS	429.0	816.0	286.0	1827.0	1289.2	1645.4
BCWP	443.0	840.0	526.0	1184.6	1415.0	1509.2
ACWP	540.0	706.0	836.0	1365.0	1250.8	1707.0
SCH VAR \$	14.0	24.0	240.0	-642.4	125.8	-136.2
SCH VAR %	3.26	2.94	83.92	-35.16	9.76	-8.28
SPI	1.033	1.029	1.839	0.648	1.098	0.917
COST VAR \$	-97.0	134.0	-310.0	-180.4	164.2	-197.8
COST VAR %	-21.90	15.95	-58.94	-15.23	11.60	-13.11
CPI	0.820	1.190	0.629	0.868	1.131	0.884
Cumulative						
BCWS	1415.0	2231.0	2517.0	4344.0	5633.2	7278.6
BCWP	1376.0	2216.0	2742.0	3926.6	5341.6	6850.8
ACWP	1485.0	2191.0	3027.0	4392.0	5642.8	7349.8
SCH VAR \$	-39.0	-15.0	225.0	-417.4	-291.6	-427.8
SCH VAR %	-2.76	-0.67	8.94	-9.61	-5.18	-5.88
SPI	0.97	0.99	1.09	0.90	0.95	0.94
COST VAR \$	-109.0	25.0	-285.0	-465.4	-301.2	-499.0
COST VAR %	-7.92	1.13	-10.39	-11.85	-5.64	-7.28
CPI	0.927	1.011	0.906	0.894	0.947	0.932
Completion						
TCPI-BAC	1.007	0.998	1.020	1.031	1.021	1.037
TCPI-LRE	1.016	1.008	1.030	1.068	1.072	1.040
CBB/TAB	17205.0	17205.0	17205.0	19529.8	20076.4	20796.2
LRE	17067.0	17067.0	17067.0	19003.8	19393.8	20761.0
UAC \$	138.0	138.0	138.0	526.0	682.6	35.2
UAC %	0.80	0.80	0.80	2.69	3.40	0.17
% SCHED-BAC	8.22	12.97	14.63	22.24	28.06	35.00
% COMP-BAC	8.00	12.88	15.94	20.11	26.61	32.94
% SPENT-BAC	8.63	12.73	17.59	22.49	28.11	35.34
SLIP IN WKS	-0.5	-0.1	1.9	-1.8	-1.1	-1.2
Forecasts						
3 MO AUG	19010.5	16940.0	19672.6	22175.5	21915.4	22021.5
6 MO AUG	18567.9	17010.9	19152.2	22019.6	21293.9	22442.8
CUM CPI	18567.9	17010.9	18993.3	21844.6	21208.5	22311.0
CUR CPI	20779.9	14788.9	26013.8	22371.4	18667.7	23122.9
COST & SCH	18400.5	17064.2	18371.4	21806.1	21203.2	22281.7
LINEAR REG	18727.4	17418.0	18505.4	21721.0	21714.8	22430.1
PERF FACTOR	17314.0	17180.0	17490.0	19995.2	20377.6	21295.2
WBS CALC	18809.2	17294.9	19456.2	20771.4	19592.2	22149.1
SEA 90 EAC	17430.2	17163.0	17653.0	20467.0	20647.8	21676.7
MICOM EAC	N/A	N/A	17829.0	23093.4	22148.3	23385.3
SPI-CPI	17205.0	17205.0	17205.0	19529.8	20076.4	20796.2
SPD EAC	20630.0	19630.0	21878.0	22930.0	24084.0	25000.0

Weighted VAR. Cost = 80.00 Schedule = 20.00 Performance Factor: 1.00

Forecasts generated independently for each level

% SCHED, % COMP, % SPENT, TCPI-BAC, TCPI-LRE calculations and forecasts generated at Total Contract (e.g. with Management Reserve), WBS and SPD EAC include projected MR usages.

Figure 7-19

The Validity report produces a list of analysis comments concerning the potential validity of data and the contractor's LRE for each WBS and Functional element (Figure 7-19). See Appendix A - Formulas for the conditions that generate the validity report comments.

Validity Report - Work Breakdown Structure	
Report Date: JUN 87	
Contract Name: MOH-2	Financial Analyst: MR E. MONEY
Contract Number: F04695-86-C-0050	Contract Manager: MR B. TECH
Contractor: MEGA HERZ ELEC & UEN	
ELEMENT CODE: 1000	
ELEMENT NAME: MOH-2	
Problems	
1. Possible inconsistency in LRE - does not reflect cumulative cost overrun.	
2. BAC changed by \$719.8	
3. LRE changed by \$1,367.2	
4. TCPI-LRE is greater than CPI by more than 0.05.	
5. Format 1 BAC does not equal Format 2 BAC.	
6. Format 1 LRE does not equal Format 2 LRE.	

Figure 7-20

The **Format 5** narrative report displays the Format 5 narrative that was entered for the selected WBS element.

The **Element Dictionary** report displays the WBS/Functional Structure information for the selected element. This data is entered in the WBS/Functional setup portion of PA (see Chapter 3). It is used to describe the scope of work related to the WBS/Functional Structure element.

The **Management Reserve Status** report displays the Budgeted Cost of Work Remaining versus the amount of Management Reserve remaining for all previous months. It also displays the Contract Budget Base (CBB)/Total Allocated Budget (TAB), Latest Revised Estimate (LRE), the percents complete and spent compared to the CBB/TAB, and the percent spent compared to the LRE. The % Complete (CBB/TAB), % Spent (CBB/TAB), and the MR as % BCWR column values will vary depending on the recalculate option selected for MR. (MR Include/Exclude option).

The **Manpower** report displays data from Format 4 of the CPR for the previous six months.

The **Baseline** report displays data from Format 3 of the CPR for the previous six months.

The **Program Manager Summary** report displays WBS or Functional performance data for all elements for a selected month (Figure 7-21).

PM Summary Report - Work Breakdown Structure													
Report Date: JUN 87							Financial Analyst: MS E. HENRY						
Contract Name: RSM-2							Contract Manager: MS D. TOSH						
Contract Number: F9405-85-C-0050													
Contractor: RSM ACSC ELAS & WSP													
LEVEL	WBS NUMBER	DESCRIPTION	UNIT	QTY	SCM	SCM	SCM	SP	CV	CP1	BAC	PCP1-BAC	OBP1
1	1000	CON			7276.6	6858.0	7345.0	-427.6	-499.0	0.532	26736.2	1.037	35.2
	1001-2	CON			1645.1	1509.2	1707.0	-136.2	-157.0	0.541	26761.0	1.040	
2	12000	CON			682.6	665.1	530.6	-13.2	-61.2	0.534	1304.6	1.135	-34.0
	12001	CON			50.2	48.1	63.2	-1.0	-13.0	0.505	1410.6	1.056	
3	12100	CON			291.6	282.6	300.0	-12.0	-17.4	0.502	610.4	1.025	-3.2
	12101	CON			35.0	35.0	37.0	0.0	-2.0	0.509	621.6	1.044	
3	12200	CON			234.6	241.0	267.1	6.4	-26.4	0.501	283.1	2.660	0.0
	12201	CON			5.0	5.0	10.0	0.0	-10.0	1.007	283.1	2.660	
3	12300	CON			352.4	345.0	363.2	-7.6	-17.4	0.552	402.0	1.145	-30.0
	12301	CON			0.0	7.0	8.1	-1.0	-1.4	0.576	513.6	0.911	
2	13000	CON			1009.2	1424.1	1732.0	-304.8	-367.6	0.583	1666.4	1.037	-307.0
	13001	CON			1272.1	1148.0	1299.1	-124.1	-151.1	0.580	14915.4	1.086	
3	13100	CON			277.1	368.0	371.1	-36.0	-10.0	0.571	1720.1	1.000	-51.6
	13101	CON			153.0	140.2	152.1	-12.0	-12.2	0.500	1750.0	0.990	
3	13200	CON			510.6	707.1	830.2	-263.2	-130.0	0.644	2043.0	1.105	-67.0
	13201	CON			195.1	168.1	211.0	-31.0	-43.0	0.777	2130.0	1.034	
3	13300	CON			759.0	666.6	580.1	-92.2	-70.2	1.133	2410.2	0.957	0.4
	13301	CON			159.1	129.1	171.2	-30.0	-11.0	0.877	2409.0	0.962	
3	13400	CON			261.2	251.0	230.1	-10.2	12.6	1.053	599.2	0.966	1.6
	13401	CON			52.0	38.0	66.1	-14.0	-22.1	0.561	599.6	0.970	
3	13500	CON			88.0	87.0	84.1	-0.2	3.1	1.000	107.0	0.967	-1.4
	13501	CON			17.1	17.2	17.1	-0.2	-0.2	0.990	106.1	0.965	
3	13600	CON			1670.0	1681.1	1577.6	-11.1	-20.2	0.950	5800.6	1.077	-107.2
	13601	CON			442.0	430.0	445.2	-1.0	-6.1	0.993	5907.0	1.027	
3	13700	CON			272.6	159.6	159.6	-113.0	0.0	1.000	300.0	1.000	0.0
	13701	CON			85.0	59.1	59.1	14.1	0.0	0.985	300.0	1.000	
3	13800	CON			426.0	509.0	534.0	83.0	-21.2	0.955	1440.0	1.027	-24.0
	13801	CON			163.1	116.6	141.6	-46.0	-25.0	1.194	1464.0	0.999	
2	14000	CON			133.0	135.0	142.0	1.2	-7.0	0.945	725.6	1.013	-6.2
	14001	CON			50.0	59.1	61.0	1.1	-2.1	1.009	761.0	1.000	

Figure 7-21

The **Executive Summary** report is a one-page report that displays key contractual and performance information for a given month. All contract data (e.g., contract period, target cost, etc) comes from the current period estimates and not the initial values entered in the initial contract setup screens.

A **Cost/Schedule Status Report (C/SSR)** is shown. This report provides cumulative performance data by WBS element, schedule and cost variances, BAC, LRE, and VAC information.

The **Monthly Resource Management Review (RMR)** report generates data to update both the Space and Missile Systems Center (SMC) RMR and the Air Force Systems Command (AFSC) Executive Information System (EIS). This report contains data such as general contract information (contract name, type, number), CPR contract summary table, target cost, target profit fee, and monthly quantities.

The **Cost Performance Report (CPR)** option allows you to view or print Formats 1-5 of the CPR. In order to print this report, a wide-carriage printer set to the condensed mode is required.

Format 1 displays the WBS data for a selected month.

Format 2 displays the Functional/Organizational data for the selected month.

Format 3 displays the beginning and end of period baseline data.

Format 4 displays the manpower data to the baseline and to the latest revised estimate (LRE).

Format 5 displays the narrative information for the selected month.

The **EAC** reports consist of the ICA EAC report, the SPO EAC report, and the SPO/ICA Comparison. These reports can be run from the WBS or Functional Structure at Level-1 only, and will contain all elements.

The **Independent Cost Assessment (ICA) EAC Report** contains the BAC, LRE, SPO EAC, ICA EAC, ICA method used, and narrative concerning the methodology used to calculate the ICA EAC. It also provides estimates utilizing the other statistical forecasts available in the PA.

The **SPO EAC Report** contains the BAC, LRE, SPO EAC, SPO method used, and narrative concerning the methodology used to calculate the SPO EAC. It also provides estimates utilizing the other statistical forecasts available in the PA.

The **SPO versus EAC/ICA report** compares the SPO EAC and method used, to the ICA EAC and method used, for each element (Figure 7-22).

SPO versus ICA Estimate - Work Breakdown Structure							
Report Date: JUN 87			Financial Analyst: MR E. MONEY				
Contract Name: MOH-2			Contract Manager: MR B. TECH				
Contract Number: F04695-86-C-0050							
Contractor: MEGA HEHZ ELEC & UEM							
WBS Analysis (Dollars in THOUSANDS)							
LEVEL	WBS CODE	WBS NAME	SPO	ICA	DELTA	SPO METHOD	ICA METHOD
1	1000	MOH-2	22149.1	22172.8	-23.7	Summary	Summary
2	2000	PROJ MANAGEMENT	1466.4	1524.5	-58.1	Summary	Summary
3	2100	PROJ MANAGEMENT	648.0	720.0	-72.0	3 MO AUG	FACTOR
3	2200	SYS ENGINEERING	315.2	300.0	15.2	6 MO AUG	GRASSRT
3	2300	FUNC INTEGRA	503.2	504.5	-1.3	3 MO AUG	3MO AUG
2	3000	PRIME EQUIP	14097.0	13893.3	203.7	Summary	Summary
3	3100	SENSORS	0.0	0.0	0.0	N/A	N/A
3	3200	COMMUNICATIONS	2421.5	2500.0	-78.5	CUR CPI	GRASSRT
3	3300	AUX EQUIP	2891.2	2550.0	341.2	CUR CPI	PRICE H
3	3400	ADPE	575.0	600.0	-25.0	COST SCHED	CATALOG
3	3500	COMP PROGRAMS	185.6	180.0	5.6	PERF FACTR	PRICE S
3	3600	PCC	6173.3	6173.3	0.0	CUR CPI	CUR CPI
3	3700	DATA DISPLAY	388.7	390.0	-1.3	LINEAR REG	GRASSRT
3	3800	I & A	1461.0	1500.0	-38.2	COST SCHED	FACTOR
2	4000	SPARES	800.8	1000.0	-199.2	CUR CPI	LCC
2	5000	DATA	156.2	155.0	1.2	Summary	Summary
3	5100	ENG DATA	44.8	40.0	4.8	6 MO AUG	FACTOR
3	5200	MANAGEMENT DATA	111.4	115.0	-3.6	3 MO AUG	FACTOR
2	6000	TEST & EVAL	1645.1	1700.0	-54.9	Summary	Summary
3	6100	TEST FACILITIES	101.0	120.0	-19.0	CUR CPI	GRASSRT
3	6200	SYSTEM TEST	683.5	600.0	83.5	LINEAR REG	GRASSRT
3	6300	PCC TEST	860.6	900.0	-39.4	PERF FACTR	GRASSRT
2		OVERHEAD	0.0	0.0	0.0	PERF FACTR	GRASSRT
2		COST OF MONEY	0.0	0.0	0.0	PERF FACTR	GRASSRT
2		GEN & ADMIN	1983.6	1900.0	83.6	PERF FACTR	GRASSRT
2		UNDIST BUDGET	0.0	0.0	0.0	PERF FACTR	GRASSRT
2		NGT RESERVE	2000.0	2000.0	0.0	PERF FACTR	GRASSRT

Figure 7-22

The **DAES Report 5A** displays your data in one of the formats used by

OSD to analyze your contracts. There are other Estimate at Complete (EAC) formulas used by OSD to analyze your contracts that are not in this report.

7.4 SORT

The Sort pull-down menu allows you to sort the WBS and Functional trees schedule cost. Sorting is useful to quickly identify major problem areas related to cost, schedule, or cost at completion.

You can open as many sort windows as desired to compare cost, schedule, and at complete performance.

Sort Methods

PA allows you to sort the WBS and Functional trees by WBS code, Description, schedule, cost, or variance at completion (\$ or %) for cumulative or current period data.

Once you select a sort method from the Sort pull-down menu, performance and trend information will be displayed in the sort window for each WBS element.

The colors and arrows are always based on percentages, but the elements are ordered (worst to best) based upon the sort criteria. When data are sorted on cumulative data, the colors and trend data are based on the cumulative performance data. When the data are sorted on current month data, the colors and arrows are based on the current month data.

Moving In The Sort Window

This sorted list of WBS/Functional elements can be used to quickly jump to an element. Just move to an element and press the **Enter** key. You will be returned to either the WBS or Functional tree, positioned at the selected element.

Press **Alt+L** to toggle between showing all of the elements versus only those that are lowest level elements. Press the Space bar to toggle between the element number and the element description.

7.5 INPUTS

The Analysis Inputs pull-down menu shown in Figure 7-23 displays the EAC /Funding/ MR and EAC/ICA data and memo access.

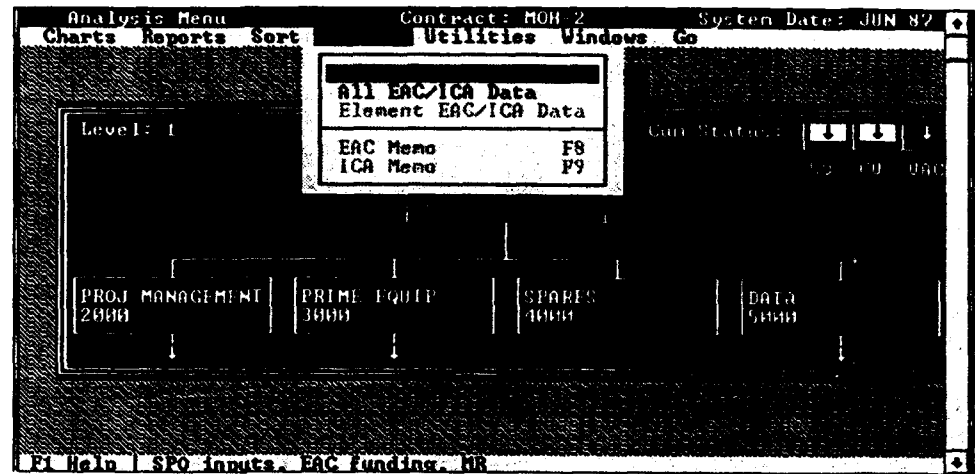


Figure 7-23

EAC/Funding/MR (SPO Input)

A number of monthly inputs are required from the analyst to complete the reporting requirements for the PMR, CARS, EIS, and RMR systems and several of the PA graphs and reports. These inputs are shown in (Figure 7-24).

The SPO and CAO EACs are entered at the subtotal level (before Management Reserve). Low, medium, and high program office EACs can be entered (i.e., EAC Low, EAC, and EAC High). These are all displayed in the Executive Summary, EAC graph, CARS, and Lotus export file. The SPO EAC can only be displayed in the Six Period Report.

The EACs shown in the Total EAC box of Figure 7-24 are the total EACs that are calculated by adding the subtotal EAC to the Projected MR Usage. The total contractor (e.g., KTR) EAC is the Total LRE minus LRE MR plus the contractor projected MR usage.

Analysis Menu		Contract: MOH-2		System Date: JUN 87	
Charts Reports Sort Inputs Utilities Windows Go					
SPO		21000.0	EAC Calc WBS w/o MR LRE	20149.	
SPO	EAC w/o MR LRE	23000.0	EAC Calc Func w/o MR LRE	22054.	
SPO	EAC High w/o MR LRE	23000.0			
SPO	Price at Complete	26000.0			
	Current Funding	10000.0			
	Projected Funding	20000.0			
SPO	Est Compl Date	15 MAR 88			
CAO	EAC w/o MR LRE	22000.0			
CAO	Price at Complete	0.0			
			Total EAC		
			KTR	EAC	20761.0
			SPO	EAC	25000.0
			SPO	EAC WBS	22149.1
			SPO	EAC Func	24054.6
			CAO		25000.0
			S/L Method		22311.0
Projected MR Usage		KTR	SPO	CAO	
Current MR		439.2	439.2	439.2	
1.	Stuff	0.0	1000.0	3000.0	
2.		0.0	1000.0	0.0	
3.		0.0	0.0	0.0	
4.		0.0	0.0	0.0	
5.		0.0	0.0	0.0	
Total MR UAC		439.2	-1560.8	-2560.8	
Date: JUN 87					
F1 Help F2 Date F3 Narrative					

Figure 7-24

For example, if the subtotal EAC was 100 and the projected usage of MR was 5, then the total EAC would be 105. Enter the SPO EAC Input w/o MR, the CAO EAC w/o MR, and the projected MR usage for each category. The SPO Price at Completion is a calculation performed by the analyst.

Also note the EAC Calc WBS w/o MR and EAC Calc Func w/o MR fields cannot be edited on this screen. They are provided as a reference point for the official SPO EAC and are calculated from the SPO EAC inputs (enter at the lowest level of the WBS and Functional Structures). This process is described in the next section of this document. **Be sure to enter the SPO Est Comp Date because it is used in management graphs to display the projected completion date.** Remember that the SPO must still enter the official SPO EAC for reporting purposes in the SPO EAC Input w/o MR field.

The SPO Input window also allows you to enter narrative information. Press **F3** to display the SPO Input Narrative window (Figure 7-25). This narrative information is displayed on the Cost/Schedule management chart.

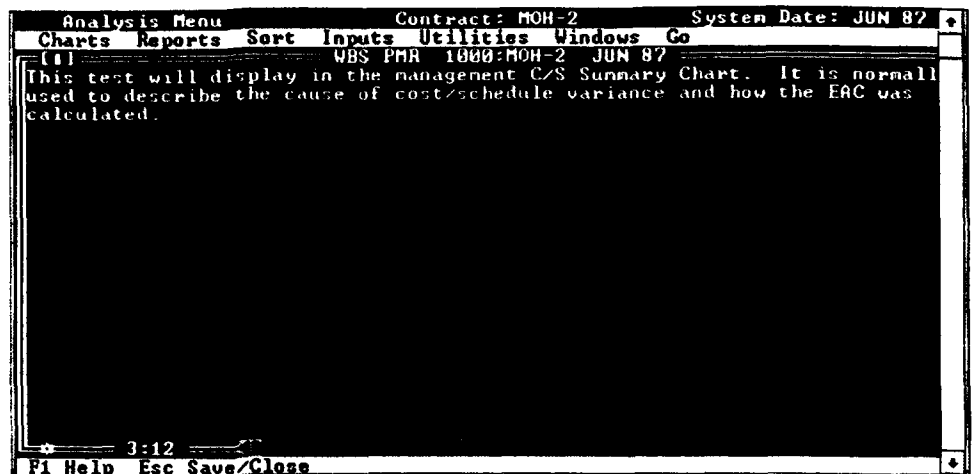


Figure 7-25

All EAC/ICA Data

When you select **All EAC/Data** from the Inputs pull-down menu, a window will open allowing you to enter an estimate for all lowest level WBS or Functional elements for the current system date (Figure 7-26). Press the **Space Bar** to toggle between the element description and the element WBS number.

Input Menu		Contract: MOH-2		System Date: JUN 87		
Memo Windows Go						
(1)		All EAC/ICA Data Input				
Description	BAC	LRE	SPO EAC	SPO METH	ICA EAC	I
PROJ MANAGEMENT	618.4	621.6	648.0	3 MO AUG	720.0	FA
SYS ENGINEERING	283.4	283.4	315.2	6 MO AUG	300.0	GR
FUNC INTEGRA	482.8	513.6	503.2	3 MO AUG	503.2	3
SENSORS	1728.4	1750.0	0.0	N/A	0.0	N/
COMMUNICATIONS	2043.0	2130.0	2421.5	CUM CPI	2500.0	GR
AUX EQUIP	2418.2	2409.8	2891.2	CUR CPI	2550.0	PR
ADPE	599.2	594.6	575.0	COST SCHED	600.0	CA
COMP PROGRAMS	189.0	190.4	185.6	PERF FACTR	180.0	PR
PCC	5800.6	5987.8	6173.3	CUR CPI	6173.3	CU
DATA DISPLAY	388.0	388.0	388.7	LINEAR REG	390.0	GR
I & A	1440.0	1464.8	1461.8	COST SCHED	1500.0	FA
SPARES	755.6	761.8	800.8	CUM CPI	1000.0	LC
ENG DATA	32.2	32.2	44.8	6 MO AUG	40.0	FA
MANAGEMENT DATA	94.8	110.8	111.4	3 MO AUG	115.0	FA
TEST FACILITIES	101.0	101.0	101.0	CUR CPI	120.0	GR
SYSTEM TEST	667.2	669.2	683.5	LINEAR REG	680.0	GR
JUN 87						
F1 Help F2 Data F3 Forecast Space Desc Ctrl-F8 Conv Esc Save/Close						

Figure 7-26

Creating a new month of data will copy last month's EAC method to the new month. If the EAC method used was one of the statistical methods provided by PA, the dollar amount will be updated. If the method is user-defined, the dollar amount will be copied from the previous month. Press F3 to select one of the standard PA forecasts.

Changing the Date (F2)

The system date determines the month of All EAC/ICA data to be entered, edited, or analyzed. The system date always defaults to the most recent

month of data. When you press **F2** from the All EAC/ICA input screen, a list of months will be displayed (Figure 7-27). Select the new month you wish to add by highlighting the desired month and pressing the **Enter** key. The list is comprised of months that have recalculated data.

Description	EAC	LRE	SPO EAC	SPO METH	ICA EAC	I
PROJ MANAGEMENT	618.4	621.6	648.6	3 MO AUG	720.0	FA
SYS ENGINEERING				UG	300.0	GR
FUNC INTEGRA					503.2	J
SENSORS	1				0.0	N/
COMMUNICATIONS	2				2500.0	GR
AUX EQUIP	2				2550.0	PR
ADPE				ID	600.0	CA
COMP PROGRAMS				IR	180.0	PR
PCC	5				6173.3	CU
DATA DISPLAY				EG	390.0	GR
I & A	1			ED	1500.0	FA
SPARES					1000.0	LC
ENG DATA					40.0	FA
MANAGEMENT DATA	94.8	110.8	111.4	3 MO AUG	115.0	FA
TEST FACILITIES	101.0	101.0	101.0	CUR CPI	120.0	GR
SYSTEM TEST	667.2	669.2	683.5	LINEAR REG	680.0	GR

Figure 7-27

Entering Forecasts (F3)

PA allows you to enter forecasts for SPO EAC, SPO Method, ICA EAC, and ICA Method. This is accomplished by moving to the cell where you wish to enter a forecast and pressing **F3**. (The forecast window will not appear if you are on a non-editable cell when you press **F3**). A window will be displayed with a list of forecasting methods (Figure 7-28). Move to the desired forecast method and press the **Enter** key. The selected method will be entered into the current cell. You can not enter an EAC for MR. The MR that you entered in the EAC/Funding/MR screen is brought forward to the WBS and Functional screens.

Description	BAC	LRE	SPO EAC	SPO METH	ICA EAC	I
PROJ MANAGEMENT	618.4	621.6	648.6	3 MO AUG	720.0	FA
SYS ENGINEERING			315.2	6 MO AUG	300.0	GR
FUNC INTEGRA			503.2	3 MO AUG	503.2	J
SENSORS			0.0	N/A	0.0	N/
COMMUNICATIONS			2421.5	CUM CPI	2500.0	GR
AUX EQUIP			2891.2	CUR CPI	2550.0	PR
ADPE			575.0	COST SCHED	600.0	CA
COMP PROGRAMS			185.6	PERF FACIR	180.0	PR
PCC			6173.3	CUR CPI	6173.3	CU
DATA DISPLAY			388.7	LINEAR REG	390.0	GR
I & A			1461.8	COST SCHED	1500.0	FA
SPARES			800.8	CUM CPI	1000.0	LC
ENG DATA			44.8	6 MO AUG	40.0	FA
MANAGEMENT DATA			111.4	3 MO AUG	115.0	FA
TEST FACILITIES			101.0	CUR CPI	120.0	GR
SYSTEM TEST	667.2	669.2	683.5	LINEAR REG	680.0	GR

Figure 7-28

Copying a SPO Forecast (Ctrl+F8)

Once a SPO forecast and forecast method have been entered, PA allows you to copy that information to the ICA EAC and ICA Method columns in the same row. To copy a forecast and forecast method, you must be in the ICA EAC or ICA Method column. Move to the row where you want the data copied and press **Ctrl+F8**. The SPO forecast and forecast method will be copied to the ICA EAC and ICA Method cells in that row.

Memo Pull-down Menu

The Memo pull-down menu allows you to enter EAC and ICA memo text (Figure 7-29). This menu is accessed by pressing **Alt+M**.

Input Menu		Contract: MOH-2		System Date: JUN 87		
Windows		All EAC/ICA Data Input				
ICA Memo F9	BAC	LRE	SPO EAC	SPO METH	ICA EAC	ICA METH
1001.00000000	618.4	621.6	618.4	3 MO AUG	720.0	FA
SYS ENGINEERING	283.4	283.4	315.2	6 MO AUG	300.0	GR
FUNC INTEGRA	482.8	513.6	501.2	3 MO AUG	501.2	J
SENSORS	1728.4	1750.0	0.0	N/A	0.0	N/A
COMMUNICATIONS	2043.0	2130.0	2421.5	CUR CPI	2500.0	GR
AUX EQUIP	2418.2	2409.8	2891.2	CUR CPI	2550.0	PR
ADPE	599.2	594.6	575.0	COST SCHED	600.0	CA
COMP PROGRAMS	189.0	190.4	185.6	PERF FACIL	180.0	PR
PCC	5800.6	5982.8	6123.3	CUR CPI	6123.3	CU
DATA DISPLAY	388.0	388.0	388.2	LINEAR REG	390.0	GR
I & A	1440.0	1464.8	1461.8	COST SCHED	1500.0	FA
SPARES	755.6	761.8	800.8	CUR CPI	1000.0	LC
ENG DATA	32.2	32.2	44.8	6 MO AUG	40.0	FA
MANAGEMENT DATA	94.8	110.8	111.4	3 MO AUG	115.0	FA
TEST FACILITIES	101.0	101.0	101.0	CUR CPI	120.0	GR
SYSTEM TEST	662.2	669.2	683.5	LINEAR REG	680.0	GR
JUN 87						
F9 ICA Memo Input						

Figure 7-29

Element EAC Data/ICA Data

When you select **Element EAC Data/ICA Data** from the Inputs pull-down menu, a window will open allowing you to enter an estimate for the current element (Figure 7-30). This option will only be displayed if you have selected a lowest level element in either the WBS or Functional Structure; otherwise, the menu option will not be highlighted. The purpose of this option is to allow the program analyst or the independent analyst to enter an independent estimate-at-completion for a single element and display previous months data for reference.

Input Menu		Contract: MOH-2		System Date: JUN 87		
Memo Windows Go						
[]		Element EAC/ICA Data Input				
Element	PROJ MANAGEMENT 2100					
Date	BAC	LRE	SPO EAC	SPO METH	ICA EAC	ICA METH
SEP 86	622.0	572.0	522.5	6 MO AVG	0.0	
OCT 86	622.0	572.0	622.0	CUM CPI	0.0	
NOV 86	622.0	572.0	673.2	CUSTOM EAC	0.0	
DEC 86	622.0	572.0	641.5	3 MO AVG	0.0	
JAN 87	622.0	576.0	673.8	CUM CPI	0.0	
FEB 87	622.0	576.0	609.7	CUM CPI	0.0	
MAR 87	622.0	576.0	683.1	CUM CPI	934.8	CUR CPI
APR 87	592.0	600.2	636.6	CUM CPI	0.0	
MAY 87	592.0	600.2	633.3	CUM CPI	0.0	
JUN 87	618.4	621.6	648.0	3 MO AVG	720.0	FACTOR
F1 Help F3 Forecast Ctrl-F8 Copy Esc Save/Close						

Figure 7-30

Your entry for each lowest level element is summed up in the appropriate structure, WBS or Functional, and displayed on the EAC/Funding/MR input screen. The SPO EAC and ICA EAC are also used to support the generation of the SPO EAC and ICA reports.

Entering Forecasts (F3)

PA allows you to enter forecasts for SPO EAC, SPO Method, ICA EAC, and ICA Method. This is accomplished by moving to the cell where you wish to enter a forecast and pressing **F3**. (The forecast window will not appear if you are on a non-editable cell when you press **F3**). A window will be displayed with a list of forecasting methods (Figure 7-31). Move to the desired forecast method and press the **Enter** key. The selected method will be entered into the current cell.

Input Menu		Contract: MOH-2		System Date: JUN 87		
Memo Windows Go						
Element EAC/ICA Data Input						
Element	PROJ MANAGEMENT 2100					
Date	BAC		PO EAC	SPO METH	ICA EAC	ICA METH
SEP 86	622.	6 MO AVG	522.5	6 MO AVG	0.0	
OCT 86	622.	CUM CPI	622.0	CUM CPI	0.0	
NOV 86	622.	CUR CPI	673.2	CUSTOM EAC	0.0	
DEC 86	622.	BAC	641.5	3 MO AVG	0.0	
JAN 87	622.	LRE	673.8	CUM CPI	0.0	
FEB 87	622.	COST SCHED	609.7	CUM CPI	0.0	
MAR 87	622.	LINEAR REG	683.1	CUM CPI	934.8	CUR CPI
APR 87	592.	PERF FACTR	636.6	CUM CPI	0.0	
MAY 87	592.	SEA 90 EAC	633.3	CUM CPI	0.0	
JUN 87	618.	NICOM EAC	548.0	3 MO AVG	720.0	FACTOR
		SPI=CPI				

Figure 7-31

Copying a SPO Forecast (Ctrl+F8)

Once a SPO forecast and forecast method have been entered, PA allows you to copy that information to the ICA EAC and ICA Method columns in the same row. To copy a forecast and forecast method, you must be in the ICA EAC or ICA Method column. Move to the row where you want the data copied and press **Ctrl+F8**. The SPO forecast and forecast method will be copied to the ICA EAC and ICA Method cells in that row.

Memo Pull-down Menu

The Memo pull-down menu allows you to enter EAC and ICA memo text. This menu is accessed by pressing **Alt+M**.

EAC Memo

When you select the **EAC Memo** option from the Memo pull-down menu, a window will open allowing you to enter text explaining the EAC methodology and rationale for the current element. The function key **F8** acts as a hot key which will display the EAC Memo window.

ICA Memo

When you select **ICA Memo** from the Memo pull-down menu, a window will open allowing you to enter text explaining the ICA methodology and rationale for the current element. The function key **F9** acts as a hot key which will display the ICA Memo window.

7.6 UTILITIES

Selecting **Utilities** from the Analysis menu bar will provide you access to **Switch**, **System Date**, **View**, and **Go to** (Figure 7-32). Each option is discussed below.

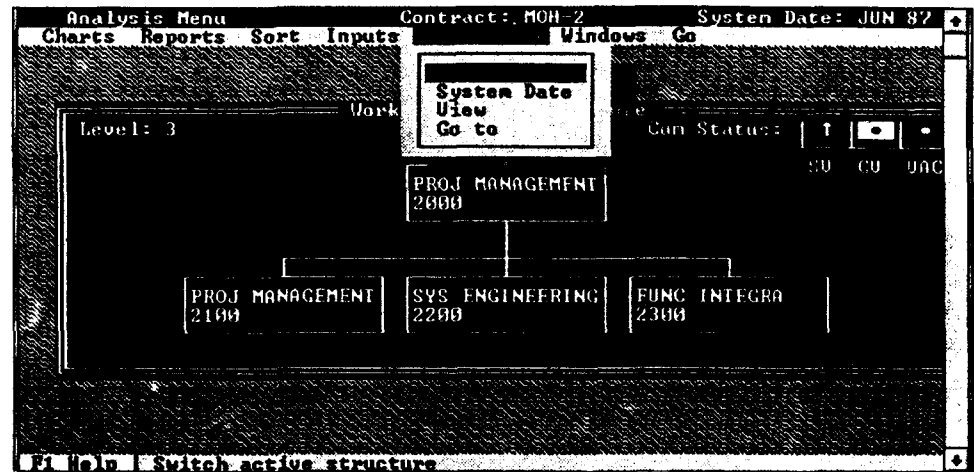


Figure 7-32

Switch

Selecting **Switch** from the Utilities pull-down menu will toggle you between WBS and Functional trees. With large WBS/Functional trees, this process may take several seconds.

System Date

This option provides you the ability to set the current system date, which determines the month of data to be entered, edited, or analyzed. When you select **System Date** from the Utilities pull-down menu, a window will appear listing the dates that have data. To change the date, highlight a date and select **OK**.

View (Element Information)

Element Information for the element that is highlighted in your WBS or Functional tree (Figure 7-33) can be viewed by selecting **View** from the Utilities pull-down menu, or by pressing the Enter key. Element Information consists of its number, name and sort field, Project Officer, Subcontractor, forecasting factors, non-addd flag, risk level, thresholds, and a narrative section. The narrative contains notes about subcontractor, element, content, and status.

Here, you can only modify the project officer and the narrative. To edit all fields, View an element via the WBS and Functional Structure options on the Initial Setup sub-menu. See Section 3.3 for more information.

Analysis Menu		Contract: MOH-2		System Date: JUN 87	
Charts	Reports	Sort	Inputs	Utilities	Windows Go
WBS Number	2100	Forecasting Factors			
WBS Name	PROJ MANAGEMENT	Cost Weight	80.0		
WBS Sort Field	2100	Schedule Weight	20.0		
Project Office Extension		Performance Factor	1.0		
Project Officer Office Symbol					
Subcontractor					
dd Marker	isk Level	OK	N	C	
F1 Help F3 Narrative F7 Copy down					

Figure 7-33

The non-add flag is used if the element is not to sum in the structure. This is commonly used for the G&A line item. In some cases, indirect costs can be additive in the WBS but do not add in the Functional Structure. See Non-Add Elements below for more information on this topic.

The Element Sort field is automatically defaulted to the Element Code number. If the WBS does not sort as desired based upon the WBS number, edit the Element Sort field to revise the order.

Forecasting factors are used to provide a means for tailoring the forecasting methods. For the cost and schedule parameters, the sum must equal 100. You may want to change these weights as the contract progresses. Typically, a higher weighting on schedule is used early in the contract, with a linear shifting to cost as the contract progresses; however, it is really dependent on your particular situation.

The performance factor is used to provide an EAC that incorporates items which may influence the work remaining that are not reflected in past performance of the given CPR data. Such items may include the contractor's prior performance on previous contracts, known future technical problems, anticipated overhead adjustments, etc. The work remaining is multiplied by the forecasting factor and then added to the cumulative ACWP. To forecast a 10% overrun in the work remaining, enter a performance factor of 1.10. The risk level entry is not currently used.

Element Thresholds

Contract thresholds are used to identify WBS/Functional elements that should have a narrative analysis on Format 5 of the CPR. The screen where you can view the thresholds for an element is accessed by selecting **Next** from the Element Information screen (Figure 7-34).

Analysis Menu				Contract: MOH-2		System Date: JUN 87	
Charts	Reports	Sort	Inputs	Utilities	Windows	Go	
				0	≤ Percent Complete ≤	97	
Cur Cost	\$	15.0	%	20	Cur Sched	\$	20.0 % 15
Cum Cost	\$	20.0	%	30	Cum Sched	\$	20.0 % 30
UAC	\$	10.0	%	100			
				98	≤ Percent Complete ≤	98	
Cur Cost	\$	10.0	%	10	Cur Sched	\$	10.0 % 10
Cum Cost	\$	15.0	%	10	Cum Sched	\$	15.0 % 10
UAC	\$	20.0	%	10			
				99	≤ Percent Complete ≤	99	
Cur Cost	\$	10.0	%	10	Cur Sched	\$	10.0 % 10
Cum Cost	\$	25.0	%	10	Cum Sched	\$	25.0 % 10
UAC	\$	50.0	%	10			
				100	≤ Percent Complete ≤	100	
Cur Cost	\$	15.0	%	10	Cur Sched	\$	15.0 % 10
Cum Cost	\$	50.0	%	10	Cum Sched	\$	50.0 % 10
UAC	\$	100.0	%	10			
				K Previous C			
F1 Help F3 Narrative F2 Copy down							

Figure 7-34

Note the "AND/OR" entry associated with the contract thresholds. The "AND" entry simply means that both the dollar and the percent threshold must be exceeded before a flag is generated on the PM Summary Report; the "OR" entry will generate a flag if either is exceeded. If the contract or element does not have thresholds for reporting, "NOT" will be displayed.

Narrative (F3)

Narrative information in this area is used to enter WBS/Functional element data dictionary information. It can be entered at any time for a selected element. Press **F3** and a window will appear where you can enter text (Figure 7-35).

Analysis Menu		Contract: MOH-2		System Date: JUN 87	
Charts	Reports	Sort	Inputs	Utilities	Windows
[1] WBS DICT 2100:PROJ MANAGEMENT JUN 87					
1:1					
F1 Help Esc Save/Close					

Figure 7-35

Go To

To highlight (select) a particular WBS or functional element, choose Go To from the Utilities pull-down menu. This will present you with the complete list of elements to choose from (Figure 7-36). Press the Enter key on your choice and PA will move to the element in the WBS or Functional tree for you. Alternately, you may use the mouse and/or cursor keys on the tree itself to highlight the desired element.



Figure 7-36

Chapter 8: EXECUTIVE INFORMATION SYSTEM MENU BAR

8.1 EXECUTIVE INFORMATION SYSTEM OVERVIEW

The Executive Information System (EIS) was designed to provide managers the ability to quickly review multiple contracts, identify problem areas, and trace problems to their source. Pull-down menus provide rapid access to variety of graphs, reports, and other useful capabilities.

The Contract Selection Window

Contracts that are accessible by you are in a scrollable window that is displayed in the middle of the screen. This window is called the Contract Selection window. (Figure 8-1).

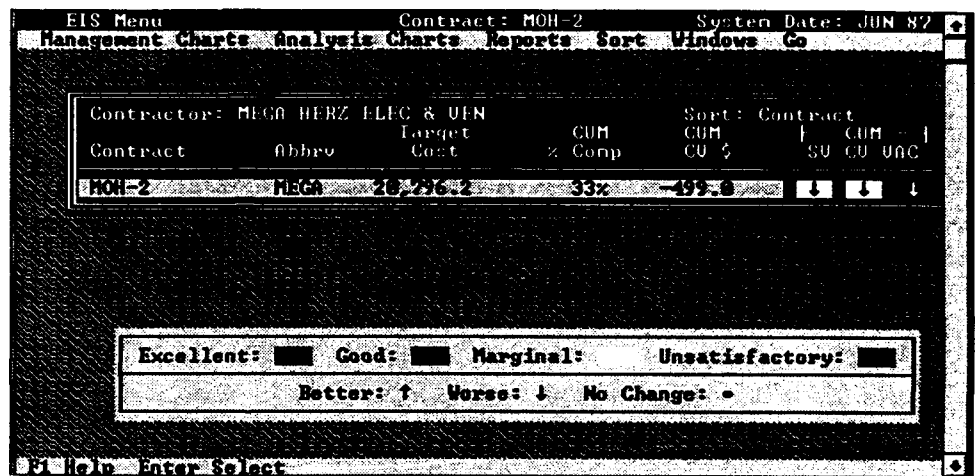


Figure 8-1

To select a contract, use the **Up/Down Arrows** to move to the desired contract and press the **Enter** key. Once a contract has been selected the contractor's name will appear at the top left corner of the contract selection window and the date of the performance data will display in the top right corner of the screen. You can review a host of graphs and reports at Level-1 of the contract.

Status Colors And Trend Arrows

The contract status colors and trend arrows are designed to quickly communicate the performance status of each contract and its trend since the previous month. This display will vary, depending on whether you have a color or monochrome system. Arrows indicate whether the trend has improved or worsened since last month. Table 8-1 describes the screen indicators and the associated contract conditions. For readability, the color of the arrows and dots will vary between black and white. The displayed color of the arrows and dots is dependent upon the status color of the contract.

<u>CONDITION</u>	<u>COLOR</u>	<u>MONOCHROME</u>
Unsatisfactory	Red	Inverse/Blinking
Marginal	Yellow	Normal/Blinking
Good	Green	Inverse
Too Good	Blue	Normal
Improved by Change Threshold %	↑	↑
Worsened by Change Threshold %	↓	↓
No Change, did not break Change Theshold	•	•

Table 8-1 Status Colors and Trend Arrows

The contract status colors are based upon schedule variance (SV), cost variance (CV), and variance at completion (VAC) percentages. A color is assigned to a contract if the variance percentage falls within a color's threshold. The thresholds for each color is loaded by the PA analyst (see Analysis Module Thesholds in Section 3.2, Initial Setup) (Figure 8-2) shows the standard status color thresholds. Different color thresholds can be applied. The color thresholds are modified from the Main menu bar in PA.

The trend arrows indicate that the cumulative percentage exceeded the change threshold. The change threshold is loaded by PA the analyst (see Analysis Module Thesholds in Section 3.2, Initial Setup). Different change thresholds can be applied. For example, if the status color of the CV is red with a down arrow, it indicates that the cumulative cost variance exceeded the status color threshold for red (normally -15%). Also, the cumulative cost variance worsened by 10% since last month.

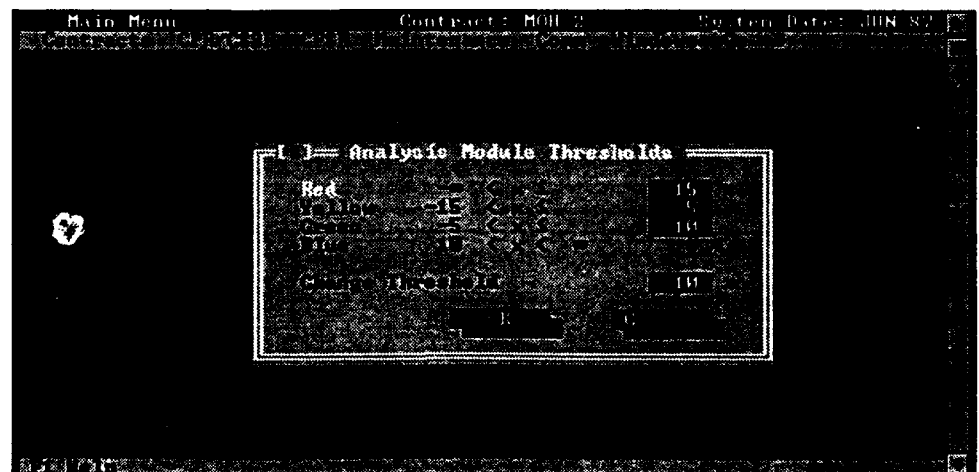


Figure 8-2

8.2 MANAGEMENT CHARTS

Program Management Review (PMR) graphs are accessed via the Management Charts pull-down menu (Figure 8-3). **Management charts are only available for Level-1 data.** Each of the available graphs is discussed briefly in the following sections.

NOTE: *Appendix F - The Traceability Guide* contains samples of each of the reports and charts described below.

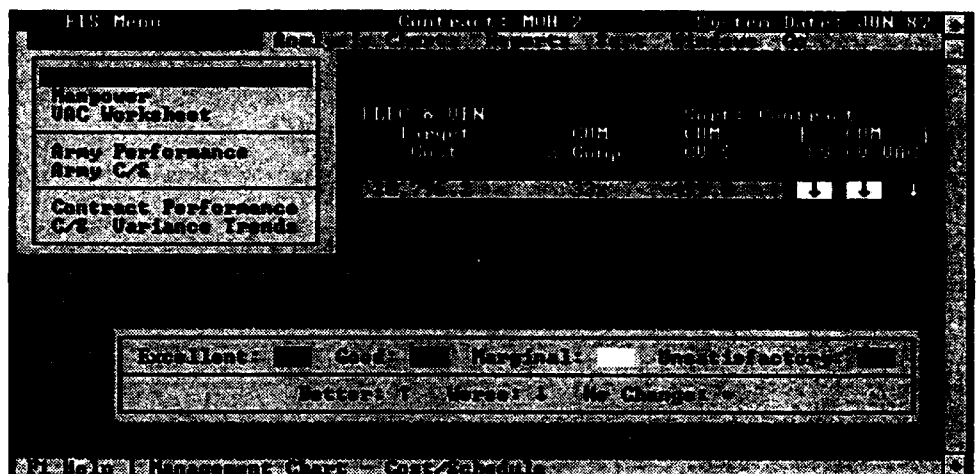


Figure 8-3

Graphs Dialog Box

A graphs dialog box similar to the one in (Figure 8-4) will be displayed when you have selected any chart from the Management Charts pull-down menu. Depending on the chart selected, the dialog box may not provide you with the ability to define the vertical range of the graph. If problems are encountered while attempting to print or plot graphs, check the printer and plotter installations from the Maintenance pull-down menu on the Main menu bar. The graphs dialog box options are discussed below.

8.2 MANAGEMENT CHARTS

Program Management Review (PMR) graphs are accessed via the Management Charts pull-down menu (Figure 8-3). **Management charts are only available for Level-1 data.** Each of the available graphs is discussed briefly in the following sections.

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Figure 8-3

Graphs Dialog Box

A graphs dialog box similar to the one in (Figure 8-4) will be displayed when you have selected any chart from the Management Charts pull-down menu. Depending on the chart selected, the dialog box may not provide you with the ability to define the vertical range of the graph. If problems are encountered while attempting to print or plot graphs, check the printer and plotter installations from the Maintenance pull-down menu on the Main menu bar. The graphs dialog box options are discussed below.

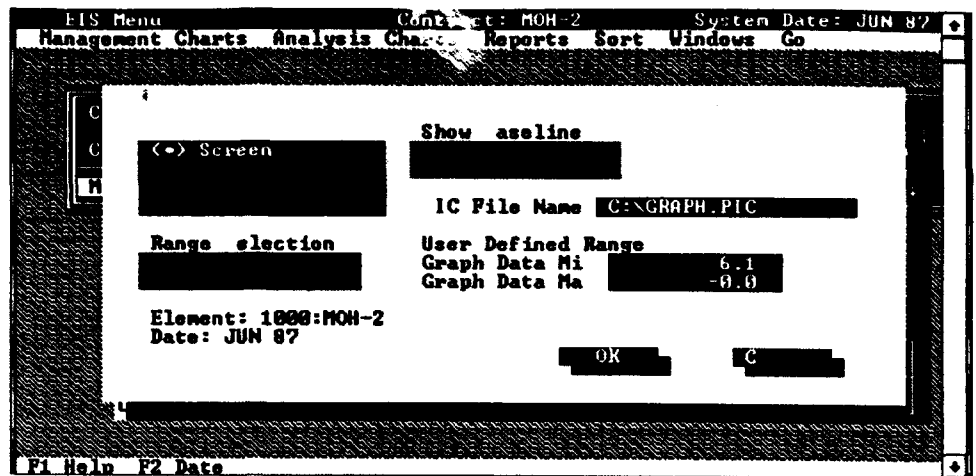


Figure 8-4

The **Screen** option displays a graph on the screen. When the graph is displayed on the screen, press the **Space Bar** to access additional graph pages. Press the **A** key while the graph is displayed, to annotate a graph. When annotating a graph, you must press the **Enter** key in order for the annotation to be accepted. Otherwise, the annotation will not appear when you print the graph. **In any event, the annotation will be removed from the graph when you return to the Contract Selection window.** Press the **Esc** key to undisplay a graph.

The **Printer** option will print the graph to the default printer. You may print without viewing a graph.

The **Plotter** option will plot the graph to the default plotter.

You may save graphs to a **Lotus PIC File** for import into graphics packages such as Freelance. PA will supply a default drive and name for the Lotus PIC file which you can overwrite.

The **Range Selection** option gives you the ability to adjust the vertical range of the graph. Use the radio buttons to identify if PA is to calculate the range based upon the minimum and maximum values of the data, or if you want to specify the minimum and maximum chart values.

Management Charts

The **Contractor Cost/Schedule Variance Trend** graph displays the last ten months of data and narrative PMR data.

The **Manpower** graph displays the Baseline forecast, LRE forecast, and actual manpower usage for the selected contract. (Baseline forecast data will only be displayed if Baseline is selected on the graph print format screen.) It shows the previous two months, current month, and To-Complete Manpower data on a non-cumulative basis.

The Variance At Completion (VAC) Worksheet breaks down the contractor VAC, the program office VAC, Straight/Line (S/L) VAC (CUM CPI), and shows anticipated uses of MR. Anticipated uses of MR are entered via Program Office (PO) Inputs in the analysis mode.

The Army Performance graph displays the BCWS, BCWP, ACWP, from the inception of the contract to the Time Now line. It also displays the EACs for the SPO, CAO, and contractor.

The Army Cost/Schedule Variance Trend graph displays the cost/schedule dollar variances from the inception of the contract and displays the projected VAC and completion date.

The Summary Contract Performance graph displays the contract start date, BCWS, BCWP, ACWP, Target, PM EAC, and the contractor's LRE from the inception of the contract; and the PM estimated completion date.

The Summary Cost/Schedule Variance Trends graph displays the Cost Variance, Schedule Variance, Management Reserve, Start, and Program Manager's estimated completion date.

8.3 ANALYSIS CHARTS

Selecting Analysis Charts from the menu bar will display the Analysis Charts pull-down menu (Figure 8-5). The Analysis Charts are only available for Level-1 data. Each of the available charts is discussed briefly in the following sections.

NOTE: *Appendix F - The Traceability Guide* contains samples of each of the reports and charts described below.

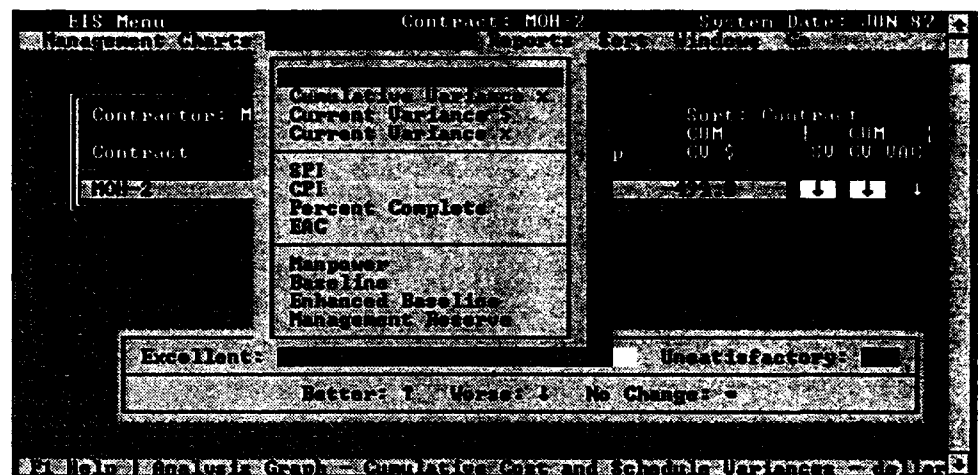


Figure 8-5

The **Cumulative Cost and Schedule Variance - Dollars** graph displays the cumulative cost and schedule variances in dollars for a selected element. It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. A cost or schedule trend that is negative indicates an unfavorable condition.

The **Cumulative Cost and Schedule Variance - Percent** graph displays the cumulative cost and schedule variances in percent for a selected element. It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. A cost or schedule trend that is negative indicates an unfavorable condition.

The Current Cost and Schedule Variance - Dollars graph displays the current month cost and schedule variances in dollars for a selected element.

It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. A cost or schedule trend that is negative indicates an unfavorable condition.

The **Current Cost and Schedule Variance - Percent** graph displays the current month cost and schedule variances in percent for a selected element. It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. A cost or schedule trend that is negative indicates an unfavorable condition.

The **Schedule Performance Indices (SPI)** graph displays the cumulative and current month schedule performance index for a selected element. A schedule performance index of less than one indicates a behind-schedule condition. For example, an SPI equal to .75 indicates only 75% of the work scheduled has actually been accomplished.

The **Cost Performance Indices (CPI)** graph displays the cumulative CPI, current month CPI, and To-Complete Performance Indices (TC) for both Budget at Complete (TC-BAC) and Latest Revised Estimate (TC-LRE) for a selected element. It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**. The CPI indicates the amount of work that was completed versus the money spent.

If the CPI is less than one, it means that less work was completed than planned for the money spent. For example, if the CPI were equal to .80, it means that for every dollar spent only \$.80 of work was completed. The TCPI indicates at what efficiency that contract must perform the work remaining to meet the BAC or LRE. Comparing the CPI (performance to date) with the TCPI (projected efficiency) is a powerful analysis tool. When the cumulative CPI varies more than .05 from the TC-LRE, the analyst should review the contractor's LRE for reasonableness.

The **Percent Complete** graph displays the dollars spent (% spent) versus the amount of work actually accomplished (% complete). The 45-degree angle line indicates where the markers should fall to be on cost. It does not mean the contract is on schedule. A marker below the 45-degree line indicates that the contractor is spending more money to complete the work to date than planned.

The **Estimate At Complete (EAC)** graph displays the contractor's Budget at Completion (BAC), the contractor's Latest Revised Estimate (LRE), and the cumulative performance index (CUM CPI) statistical forecast by default. You can select up to five different EACs to display on your graph. This is accomplished by selecting the **EAC** radio button and then selecting one or more of the available EACs.

The **Manpower** graph displays the Baseline forecast, LRE forecast, and actual manpower usage for the selected contract. It shows the previous two months, current month, and To-Complete Manpower data on a non-cumulative basis.

The **Baseline** graph displays the baseline for the life of the contract and the cumulative BCWS, BCWP, and ACWP to date. Also, the chart shows the contract target cost and other data items. This chart is often required in the Program Financial Review (PFR).

The **Enhanced Baseline** graph allows you to select up to three CPR reports and compare the baselines against one another. This is useful to graphically portray baseline changes. You can select up to three different baseline dates to display on your graph. This is accomplished by selecting the Dates radio button and then selecting one or more of the available dates.

The **Management Reserve** graph displays the cumulative cost variance, Management Reserve (MR), and the summation of the cumulative cost variance and MR. It will initially display the most recent 12 months of data. You may toggle back in 12-month increments by pressing the **Space Bar**.

Reports

Selecting **Reports** from the EIS menu bar will display the Reports pull-down menu shown in (Figure 8-6). If a report is not available, the option will not be highlighted. Some reports such as the PM Summary are available at Level-1 only. Reports can be displayed on the screen and output to a printer or a file.

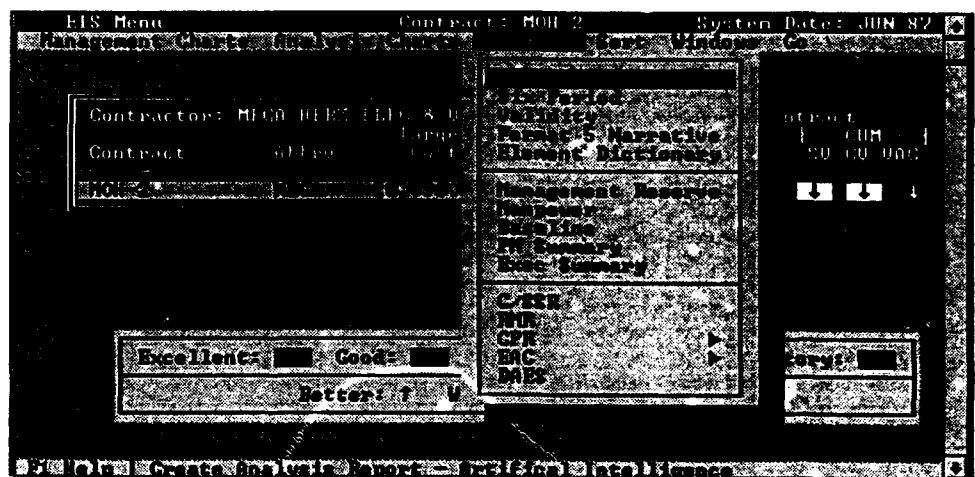


Figure 8-6

The **AI (Artificial Intelligence)** option allows you to generate and display an AI type report that describes the cost and schedule status of the selected contract. The rules and methods used to generate this text are consistent with those used by the Defense Systems Management College (DSMC) in its CAPPS performance measurement software version 2.1.

The **Six Period** report displays the last six months of performance data and related forecasts-to-complete for the selected contract.

The **Validity report** produces a list of analysis comments concerning the potential validity of data and the contractor's LRE for each WBS and Functional element. See *Appendix A. Formulas* for the conditions that generate the validity report comments.

The **Format 5 Narrative** option displays contractor narrative data from Format 5 of the CPR for a selected element.

This report displays the WBS/Functional Structure dictionary information for the selected element. This data is entered in the WBS/Functional setup portion of PA (see Chapter 3.3). It is used to describe the scope of work related to the WBS/Functional Structure element.

The **Management Reserve** report displays the Budgeted Cost of Work Remaining versus the amount of Management Reserve remaining for all previous months. It also displays the Contract Budget Base (CBB)/Total Allocated Budget (TAB), Latest Revised Estimate (LRE), the percents complete and spent compared to the CBB/TAB, and the percent spent compared to the LRE.

The **Manpower** report displays data from Format 4 of the CPR for the previous six months.

The **Baseline** report displays baseline data for 6 periods and displays some of the data from Format 3 of the CPR for the previous six months.

The **Program Manager (PM) Summary** report displays WBS or Functional performance data for all elements for a selected month.

The **Executive Summary report** is a one-page report that displays key contractual and performance information for a given month. All contract data (e.g., contract period, target cost, etc) comes from the current period estimates and not the initial values entered in the initial contract setup screens.

A **Cost/Schedule Status Report (C/SSR)** provides cumulative performance data by WBS element, schedule and cost variances, BAC, LRE, and VAC information.

The **Monthly Resource Management Review (RMR)** report generates inputs to update the Space and Missile Systems Center (SMC) RMR. This report contains data such as general contract information (contract name,

type, number), CPR contract summary table, target cost, target profit fee, and monthly quantities

The **Cost Performance Report (CPR)** option allows you to view or print Formats 1-5 of the CPR. (Figure 8-7) These reports are accessible from the CPR sub-menu and are briefly described below. In order to print this report, a wide-carriage IBM printer set in the condensed mode is required.

Format 1 displays the WBS data for a selected month.

Format 2 displays the Functional/Organizational data for the selected month.

Format 3 displays the beginning and end of period baseline data.

Format 4 displays the manpower data to the baseline and to the latest revised estimate (LRE).

Format 5 displays the narrative information for the selected month.

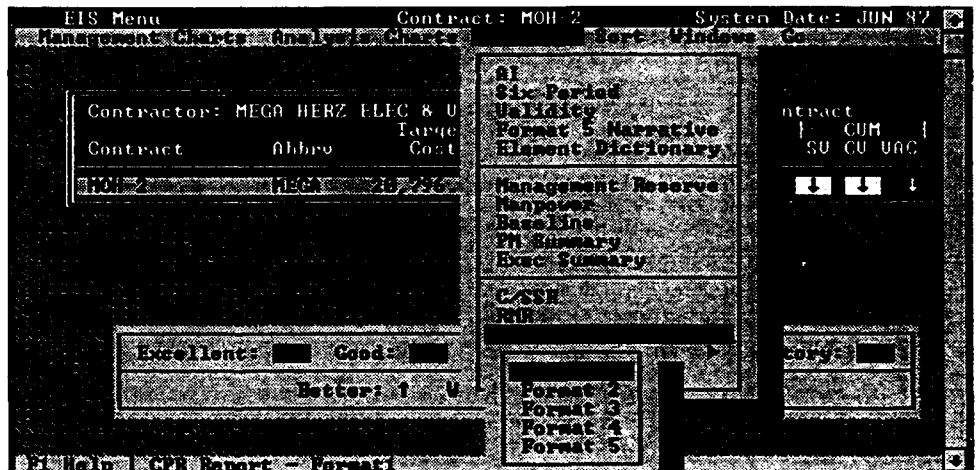


Figure 8-7

The **Estimate at Complete (EAC)** reports consist of the ICA EAC, SPO EAC, and SPO/ICA Comparison reports, which are accessed from the EAC sub-menu. These reports can be run from the WBS or Functional Structure at Level-1 only, but the report will contain all elements (Figure 8-8).

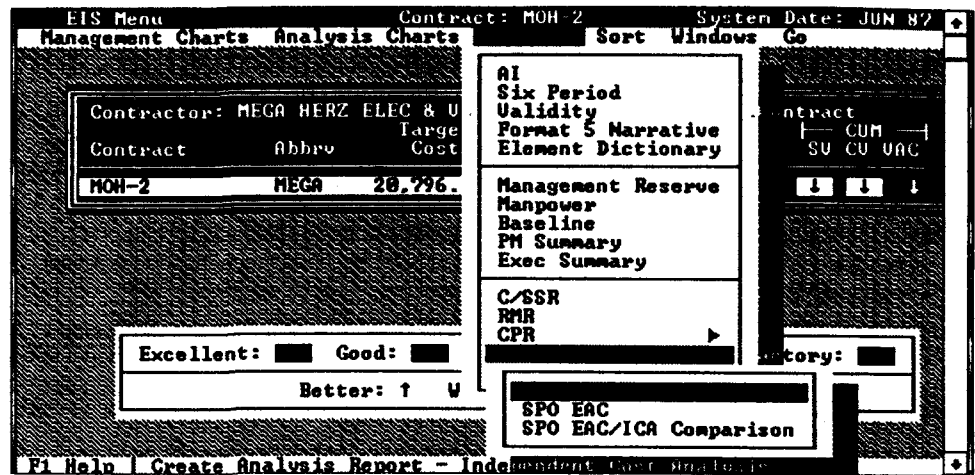


Figure 8-8

The **ICA EAC Report** contains the BAC, LRE, SPO EAC, ICA EAC, ICA method used, and narrative concerning the methodology used to calculate the ICA EAC.

The **SPO EAC Report** contains the BAC, LRE, SPO EAC, SPO method used, and narrative concerning the methodology used to calculate the SPO EAC.

The **SPO versus EAC/ICA** report compares the SPO EAC and method used, to the ICA EAC and method used, for each element.

The **DAES Report 5A** displays your data in one of the formats used by OSD to analyze your contracts. There are other Estimate at Complete (EAC) formulas used by OSD to analyze your contracts that are not in this report.

Sort

The **Sort** menu option allows you to sort the contracts shown in the Contract Selection Window by contract, contractor, cost, schedule, or variance at completion based on dollar or percentage variance for both current and cumulative data (Figure 8-10).

Sorting is useful for identifying the major problem areas related to cost, schedule, or cost at completion. The colors and arrows are based upon the CV, SV, and VAC percentages. The elements are ordered (worst to best) based upon the sort criteria. You can open multiple sort windows if desired.

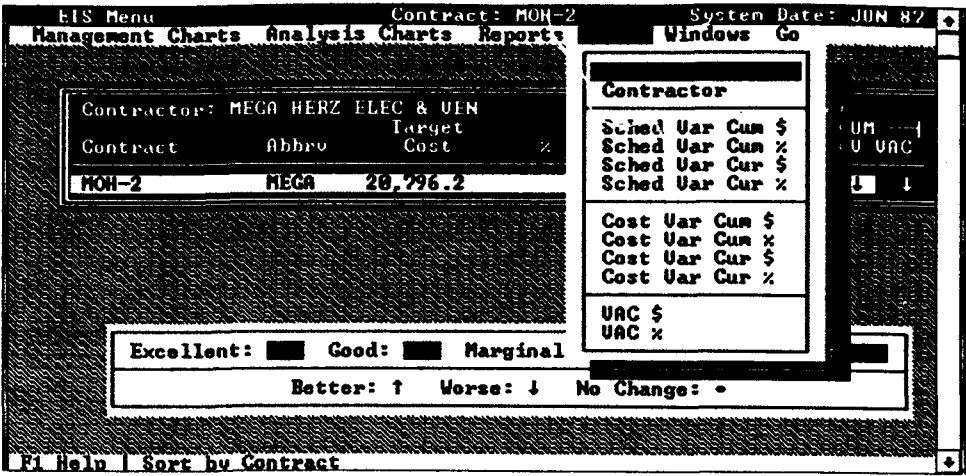


Figure 8-10

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Chapter 9: PMR MENU BAR

9.0 PMR MENU BAR

The PMR menu bar allows you to build a Program Management Review (PMR) briefing for a selected date (e.g., OCT 99) and, if desired, batch plot briefing charts. A PMR Overview chart is shown in Figure 9-1. The PA allows a great deal of flexibility in determining the contracts to be reported, the month of data to be used for each contract, and the order contracts will appear.

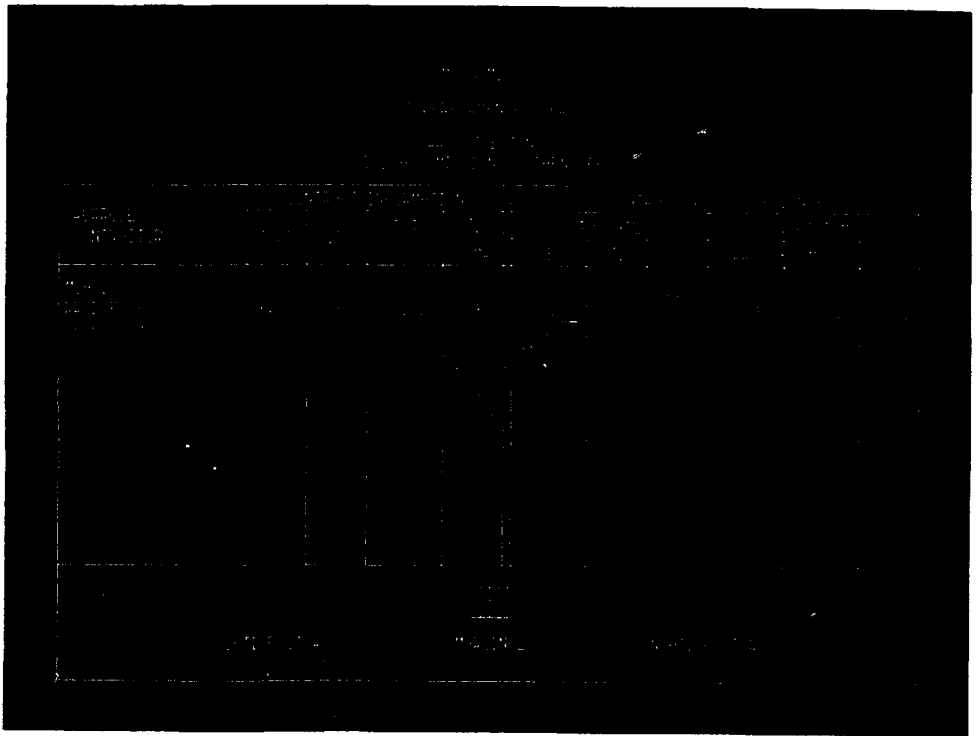


Figure 9-1

For each month of PMR reporting, you must create a new PMR briefing set for a selected date. The Summary PMR will always default to the most recent PMR date, but this can be changed to review historical data or to create a new date. To build a PMR briefing set, you must initialize a new date, select contracts to be reported, determine the month of data to be used for each contract, and specify the page/order that each contract will appear on the Summary PMR Charts. The maximum number of contracts on one page of the Summary PMR Chart is limited to four. The following sections provide definitions of each menu option shown in Figure 9-2.

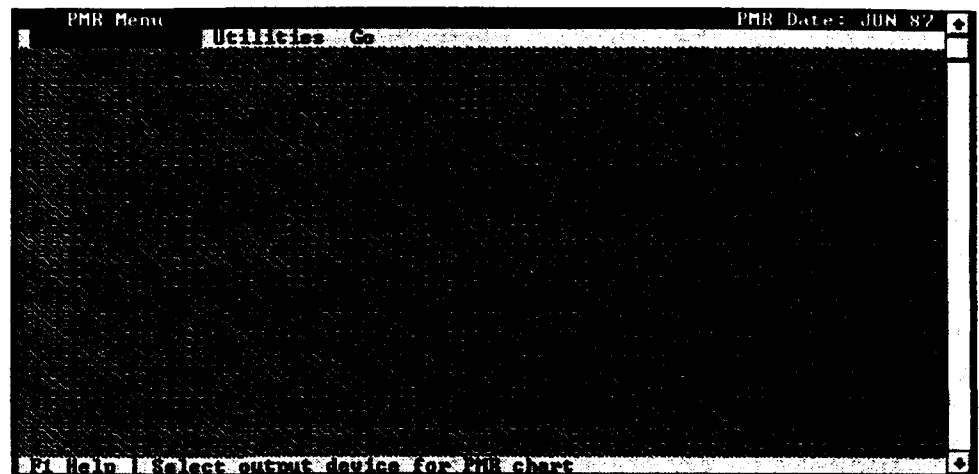


Figure 9-2

9.1 PMR OVERVIEW

When you select **PMR Overview**, the dialog box in Figure 9-3 will be displayed. Use this dialog box to identify where you want the PMR Overview chart directed. Each option is discussed below.

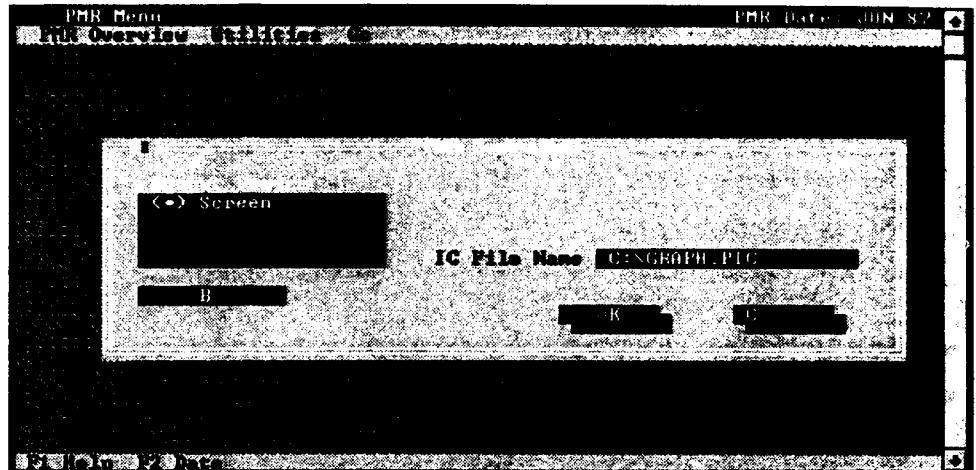


Figure 9-3

PMR Overview Output Devices

Selecting the **Screen** radio button directs the Summary PMR Chart to your screen. If the information that is displayed fills more than one screen, (i.e., more than four contracts,) press the **Spacebar** to bring up the next chart. Also see **Batch** below.

Before you select the **Printer** option, make sure your printer is turned on and ready. Once you select the **Printer** option, it will send the chart to the printer you specified in printer setup. For more information on printer setup, see the **Printer Setup** sections in Chapter 5, **Maintenance**. Also see **Batch** below.

Before you select the **Plotter** option, make sure your plotter is turned on and ready. Once you select this option, it will send the chart to the plotter you specified in plotter setup. The Hewlett Packard Laserjet is not a plotter unless you have a Laserjet with that feature. For more information on plotter setup, see the **Plotter Setup** section of Chapter 5, **Maintenance**. Also see **Batch** below.

When you select **Lotus PIC File**, you must also specify the path and file name to assign to the PIC file that is to be created. You must change the file name if you are saving more than one file, or else the existing file will be overwritten. Also see **Batch** below. Once you have the file(s) saved in the Lotus PIC format, you can import it into Freelance (or any software package that offers the same capability) for editing. The PIC file can also be imported into WordPerfect, MS Word or other word processing software packages and then used in reports.

The **Batch** option allows you to produce the Summary PMR Chart(s) along with the associated PMR Cost/Schedule, Manpower, and VAC Worksheet Chart for each contract listed on the Summary PMR Chart(s). When you are in this field, press the **Space Bar** or **B** key to select this option. See *Appendix F Traceability Guide* for samples of these charts.

9.2 UTILITIES

The **PMR Utilities** menu bar option allows you to build a complete cost performance PMR briefing set. Selecting this option will display the menu shown in Figure 9-4. Each option is described below.

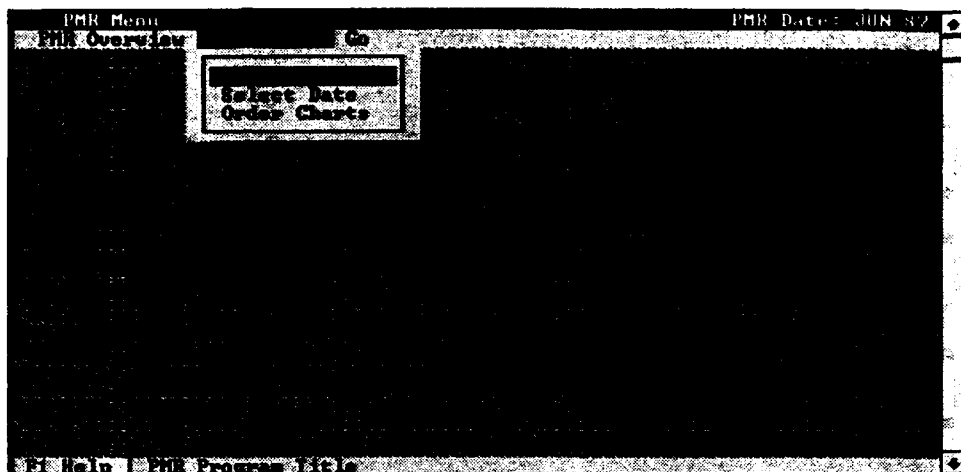


Figure 9-4

Program Title

This option allows you to enter or edit the title of the Summary PMR Charts. This title will appear on all pages of the Summary PMR Charts. If you do not want a title, select this option, press the **Space Bar** to clear the default title (or use the **Delete** key), and then select **OK** to save. No title will appear in the Chart Title line.

Select Date

This option allows you to create a new or select an existing PMR date. (The date will comprise of a month and year). The system defaults to the most recent PMR date. This date will appear on all pages of the Summary PMR Charts. The set of contracts reported are tied to this date. Thus, a different set of contracts can be reported for each date. Setting the date to a prior month can be a useful tool to review what was briefed to management in a prior PMR.

Order Charts

The input screen shown in Figure 9-5 allows you to accomplish the following:

1. Establish which contracts will be reported for the current date. Use the **Insert** and **Delete** keys (or radio buttons) to add or delete reported contracts. When you select **Insert**, a second dialog box will appear. The dialog box will let you establish the features described in items 2-4.
2. Set the order that the contracts appear on a page. The contract order code is established in the following manner: a single alphabetical letter will establish the page number. An "A" indicates page one, a "B" indicates page two, etc. A number following the contract order code letter indicates the order the contract is to be listed on the page. For example, B3 indicates that the contract is to be listed third on page two.
3. Set which contracts appear on each page of the Summary PMR Chart. Only four contracts can be reported per page. Press the **Enter** key when you are at the Contract field for a list of available contracts.
4. Establish which month of data is to be reported for each contract. You may not wish to report the most recent data in some circumstances (e.g., current CPR data was determined to be invalid). This feature allows you to select the desired month of CPR data to report. Press the **Enter** key when you are at the Display Date field for a list of available dates.

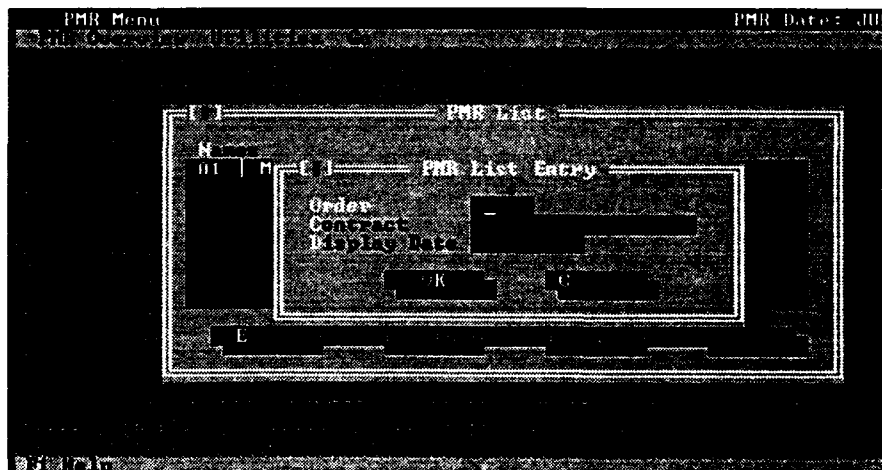


Figure 9-5

Appendix A - FORMULAS

APPENDIX A - FORMULAS

ASSUMPTIONS

Current Month Adjustments

Current Period values (BCWS, BCWP, ACWP) are derived by subtracting prior month cumulative values from current month cumulative values. The derived current period values for BCWS, BCWP, and ACWP are then used in the following formulas: three month EAC, six month EAC, current CPI EAC, linear regression EAC, and schedule variance in weeks. Your paper CPR current-month values may contain adjustments due to accounting corrections, or mistakes (which should be explained in your Format 5). Therefore, the current period values from your CPR may not match the current-period values derived by PA.

Management Reserve

Users have the option to specify (in the Recalculation Module) whether forecasts at complete and calculations such as % complete, % spent, % schedule, and to-complete performance indices are generated at completion can be performed at the total contract level (e.g., PMB + MR) or at the PMB (without MR). When forecasts are generated at the total contract level it is assumed that MR will be consumed in accordance with prior performance.

If forecasts are generated at the PMB it is assumed that MR will not be automatically consumed. If you wish to identify utilization of MR you may input the MR usage in the SPO input screen.

MR and UB Forecasts

A decision was made at the 6 December 1991 PA User's Group meeting on how to handle MR and UB forecasts at complete. It was determined that since MR and UB had no monthly performance measurement data, such data would be pulled from the total contract level (i.e., SPI, CPI, etc.) to calculate statistical forecasts. For example, assume the following:

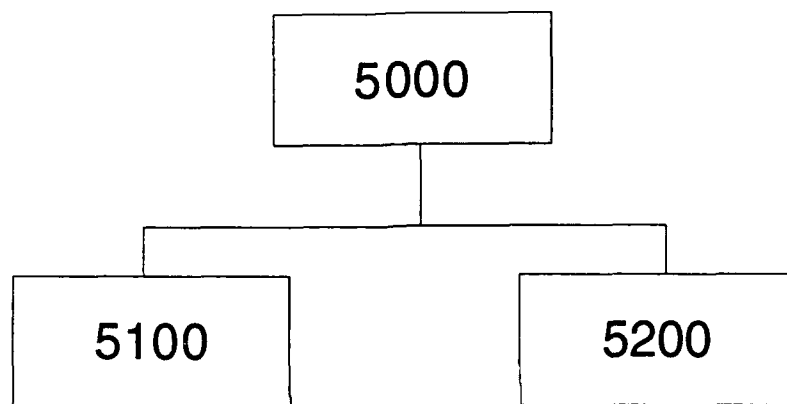
$$\begin{array}{rcl} \text{MR BAC} & = & 100 \\ \text{CUM CPI Total Contract} & = & .9 \end{array}$$

Cum CPI Forecast for MR would be:

$$\text{MR} = 100/.9 = 111$$

Sum Yes Vs Sum No

PA will generate forecasts for each element (all levels) independently or generate forecasts at the lowest level and summarize the lowest levels up the WBS/Functional tree. When sum forecast is set to "YES", and you recalculate your data, you will not be able to use the forecasts in this Appendix to calculate the values for summary level elements. There are three cases below that illustrate the different values that can be generated based on the sum forecast "YES" or "NO". Note that in these cases the differences between sum forecast "YES" and "NO" range from 11.64% to -9.60%.



All of the cases assume that element 5100 and 5200 are children of element 5000. Elements 5100 and 5200 are also lowest level elements. The formula used to calculate the EACs in the cases is $EAC = BAC/CPI$.

CASE 1

<u>DATA</u>	<u>5000</u>	<u>5100</u>	<u>5200</u>
CUM BCWS	99	19	80
CUM BCWP	92	12	80
CUM ACWP	110	17	93
BAC	127	32	95
LRE	143	32	111
CUM CPI	0.83636364	0.70588235	0.86021505

FORECASTS EAC

SUM "NO"	151.85 =	127/0.8363	
SUM "YES"	155.77 =	32/0.7058	+ 95/0.8602
DELTA \$	3.92		
DELTA %	2.58%		

CASE 2

<u>DATA</u>	<u>5000</u>	<u>5100</u>	<u>5200</u>
CUM BCWS	99	19	80
CUM BCWP	92	12	80
CUM ACWP	110	17	93
BAC	295	200	95
LRE	321	210	111
CUM CPI	0.83636364	0.70588235	0.86021505

FORECASTS EAC

SUM "NO"	352.72 =	295/0.8363	
SUM "YES"	393.77 =	200/0.7058	+ 95/0.8602
DELTA \$	41.05		
DELTA %	11.64%		

CASE 3

DATA	5000	5100	5200
CUM BCWS	99	19	80
CUM BCWP	92	18	80
CUM ACWP	110	17	93
BAC	295	200	95
LRE	301	190	111
CUM CPI	0.89090909	1.05882353	0.86021505

FORECASTS EAC

SUM "NO"	331.12 =	295/0.8909	
SUM "YES"	299.33 =	200/1.058	+ 95/0.8602
DELTA \$	-31.80		
DELTA %	-9.60%		

ANALYSIS FORMULAS**Current**

1. Current Period Schedule Variance \$ = BCWP (CUR) - BCWS (CUR)
2. Current Period Schedule Variance % = $\frac{\text{Schedule Variance (CUR)}}{\text{BCWS (CUR)}} \times 100$
3. Current Period SPI = $\frac{\text{BCWP (CUR)}}{\text{BCWS (CUR)}}$
4. Current Period Cost Variance \$ = BCWP (CUR) - ACWP (CUR)
5. Current Period Cost Variance % = $\frac{\text{Cost Variance (CUR)}}{\text{BCWP (CUR)}} \times 100$
6. Current Period CPI = $\frac{\text{BCWP (CUR)}}{\text{ACWP (CUR)}}$

Cumulative

1. Cumulative Schedule Variance \$ = BCWP (CUM) - BCWS (CUM)
2. Cumulative Schedule Variance % = $\frac{\text{Schedule Variance (CUM)}}{\text{BCWS (CUM)}} \times 100$
3. Cumulative SPI = $\frac{\text{BCWP (CUM)}}{\text{BCWS (CUM)}}$
4. Cumulative Cost Variance \$ = BCWP (CUM) - ACWP (CUM)
5. Cumulative Cost Variance % = $\frac{\text{Cost Variance (CUM)}}{\text{BCWP (CUM)}} \times 100$
6. Cumulative CPI = $\frac{\text{BCWP (CUM)}}{\text{ACWP (CUM)}}$

Completion

1. To Complete Performance Index (BAC)

$$\begin{aligned} \text{(PMB)} &= \frac{\text{BAC} - \text{Management Reserve}}{\text{BAC} - \text{ACWP (CUM)}} \times \frac{\text{BAC} - \text{BCWP (CUM)}}{\text{BAC} - \text{ACWP (CUM)}} \\ \text{(Other Levels)} &= \frac{\text{BAC} - \text{BCWP (CUM)}}{\text{BAC} - \text{ACWP (CUM)}} \end{aligned}$$

2. To Complete Performance Index (LRE)

$$\begin{aligned} \text{(PMB)} &= \frac{\text{BAC} - \text{Management Reserve}}{\text{LRE} - \text{Management Reserve}} \times \frac{\text{BAC} - \text{BCWP (CUM)}}{\text{LRE} - \text{ACWP (CUM)}} \\ \text{(Other Levels)} &= \frac{\text{BAC} - \text{BCWP (CUM)}}{\text{LRE} - \text{ACWP (CUM)}} \end{aligned}$$

3. Contractor Variance-At-Completion (VAC) \$ = BAC - LRE

NOTE: includes MR

4. Contractor Variance-At-Completion (VAC) % = $\frac{\text{BAC} - \text{LRE}}{\text{BAC}} \times 100$

5. % Scheduled (BAC) =

$$\text{(PMB)} = \frac{\text{BCWS (CUM)}}{\text{BAC} - \text{MR}} \times 100$$

$$\text{(Other Levels)} = \frac{\text{BCWS (CUM)}}{\text{BAC}} \times 100$$

6. % Complete (BAC) =

$$(PMB) = \frac{BCWP (CUM)}{BAC - MR} \times 100$$

$$(Other Levels) = \frac{BCWP (CUM)}{BAC} \times 100$$

7. % Spent (BAC)

$$(PMB) = \frac{ACWP (CUM)}{BAC - MR} \times 100$$

$$(Other Levels) = \frac{ACWP (CUM)}{BAC} \times 100$$

8. Schedule Slip in Weeks = $\frac{\$SV (CUM)}{3 \text{ Month Average of (CUR) BCWS \$}} \times 4.3$

NOTE: Data must be loaded monthly for the slip in weeks to be valid. If data is loaded quarterly instead of monthly, the schedule slip in weeks will be understated.

Other Formulas

1. % Spent (LRE)

$$(PMB) = \frac{ACWP (CUM)}{LRE - MR} \times 100$$

$$(Other Level) = \frac{ACWP (CUM)}{LRE} \times 100$$

2. MR as % Budgeted Cost of Work Remaining (BCWR) = $\frac{MR}{BAC - BCWP}$

3. Tolerance Band High = $\frac{BAC}{\left(\frac{BCWP}{ACWP}\right) - \frac{\left(\frac{BAC}{BCWP}\right)^2}{100}}$

4. Tolerance Band Low = $\frac{BAC}{\left(\frac{BCWP}{ACWP}\right) + \frac{\left(\frac{BAC}{BCWP}\right)^2}{100}}$

FORECASTING TECHNIQUES

All Forecasting techniques exclude management reserve (MR) when calculated at the PMB.

3-Month Average

This method is calculated using a performance factor based on a three-month average of current month cost performance. Step by step, it is calculated as follows:

1. Compute the Performance Factor (PF).

The example assumes that the current month is March 1990.

$$PF = \frac{(\text{March 90}) \text{ BCWP (CUM)} - (\text{Dec 89}) \text{ BCWP (CUM)}}{(\text{March 90}) \text{ ACWP (CUM)} - (\text{Dec 89}) \text{ ACWP (CUM)}}$$

2. Compute the quantity of Work Remaining (BCWR).

$$(\text{PMB}) \text{ BCWR} = \text{BAC} - \text{MR} - \text{BCWP (CUM)}$$

$$(\text{Other Levels}) \text{ BCWR} = \text{BAC} - \text{BCWP (CUM)}$$

3. Compute the Estimate to Complete (ETC).

$$ETC = \frac{\text{BCWR}}{\text{PF}}$$

4. Compute the Cost at Completion (CAC).

$$\text{CAC} = \text{ETC} + \text{ACWP (CUM)}$$

6 - Month Average

Same as the 3-Month Average except compute the CPI's and performance factor using six months.

Cumulative Cost Performance Index (CPI)

This method is calculated using a performance factor based on cumulative cost performance. Step by step, it is calculated as follows:

The example assumes that the current month is June 1990.

1. Compute the Performance Factor (PF).

$$PF = \frac{(\text{June 90}) \text{ BCWP (CUM)}}{(\text{June 90}) \text{ ACWP (CUM)}}$$

2. Compute the quantity of work remaining (BCWR).

$$BCWR = BAC - BCWP (CUM)$$

3. Compute the Estimate to Complete (ETC).

$$ETC = \frac{BCWR}{PF}$$

4. Compute the Cost at Completion (CAC).

$$CAC = ETC + ACWP (CUM)$$

Current Month Cost Performance Index (CPI)

Same as Cumulative CPI except current month data is used in step 1.

Weight Cost and Schedule

This method is calculated using a performance factor based on a combination of cost and schedule variances, and user chosen performance weightings. It is calculated as follows:

Weight and cost schedule

$$CAC = ACWP(CUM) + \left(\frac{(BAC - BCWP(CUM))}{[(A) \times (CPI(CUM))] + [(B) \times (SPI(CUM))]} \right)$$

where A = the cost weighing
B = schedule weighing

The sum of A and B must equal 1, and the BAC excludes MR. This formula is further explained in the AFSC Guide to Analysis of Contractor Cost Data, 1 September 1989, page 20.

NAVSEA 90's Formula

The SEA 90 Formula for Estimate at Completion (EAC) is based on historical data from NAVSEA contracts. It includes the effects of both schedule variance and cost variance. It uses cumulative data for the calculation.

$$1. \quad CCPI = \left(\frac{BCWP}{2 \times ACWP} \right) \times \left(1 + \left(\frac{BCWP}{BCWS} \right) \right) \times \left(1 + \frac{(BCWS - BCWP)}{(CBB + OTB)} \right)$$

2.

$$CAC = ACWP + CBB + OTB - BCWP + \left[\left(\frac{CBB + OTB - BCWP}{CCPI} \right) - CBB - OTB + BCWP \right] \times \frac{BCWP}{CBB + OTB}$$

User Performance Factor

Same as 3-Month Average calculation, except, in Step 2, the performance factor is user-specified instead of calculated. In addition, in Step 3 (BCWR) the work remaining is multiplied by the performance factor instead of dividing by it. Therefore, to project a 10% overrun in work remaining, the performance factor would be 1.10.

Linear Regression

A linear regression technique is used that runs a straight line through the data as shown in Figure A-1.

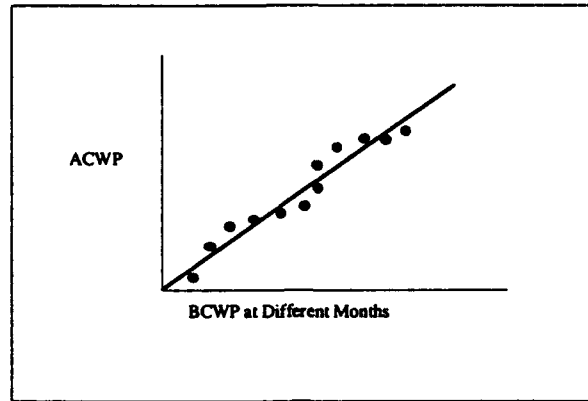


Figure A-1

On the X-axis is BAC (BCWP). Where the regression line meets the BAC line is the point on the Y-axis which will reflect EAC. See Figure A-2.

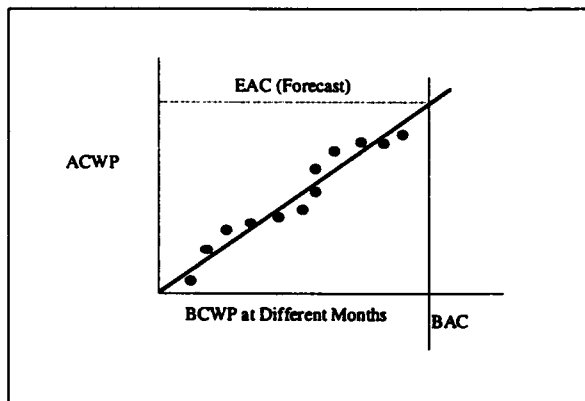


Figure A-2

The equation of a line using the 2-coordinate plans is:

$$Y = b_1 + b_2 X$$

$$Y = b_1 N + b_2 X$$

where N = # of observations

$$Y = b_1 XX + b_2 XX$$

The regression model uses these equations to generate the b1 and b2 values.

After b1 and b2 are calculated, the BAC is plugged into the equation as X to generate an EAC (Y).

MICOM EAC

1. Compute the six month average cumulative CPI. The example assumes that the current month is June 1990.

6 month CPI

$$6pCPI = \frac{(June90)BCWP(CUM) - (Dec89)BCWP(CUM)}{(June90)ACWP(CUM) - (Dec89)ACWP(CUM)}$$

2. Compute the Cumulative SPI.

$$SPI = \frac{BCWP(CUM)}{BCWS(CUM)}$$

3. Compute Performance Factor.

$$PF = 6pCPI \times SPI$$

4. Compute the Budgeted Cost of Work Remaining (BCWR).

$$BCWR = BAC - BCWP(CUM)$$

5. Compute the Estimate to Complete (ETC).

$$ETC = \frac{BCWR}{PF}$$

6. Compute the Cost at Complete (CAC).

$$CAC = ETC + ACWP(CUM)$$

DAES REPORT 5A

1. $BCWS\% = \frac{BCWS(CUM)}{ContractBudgetBase}$
2. $BCWP\% = \frac{BCWP(CUM)}{ContractBudgetBase}$
3. $ACWP\% = \frac{ACWP(CUM)}{ContractBudgetBase}$
4. $SVtoDATE\$ = BCWP(CUM) - BCWS(CUM)$
5. $SVtoDATE\% = \frac{BCWP(CUM) - BCWS(CUM)}{ContractBudgetBase}$
6. $CVtoDATE\$ = BCWP(CUM) - ACWP(CUM)$
7. $CVtoDATE\% = \frac{BCWP(CUM) - ACWP(CUM)}{ContractBudgetBase}$
8. $ContractBudgetBase(CBB)\% = \frac{ContractBudgetBase}{ContractBudgetBase}$
9. $Contractor's EAC\% = \frac{Latest Revised Estimate (LRE)}{ContractBudgetBase}$
10. $ProgramManagersEAC\% = \frac{ProgramManagersEAC + MRUSage}{ContractBudgetBase}$

COST AT COMPLETION =

$$((CBB - BCWP (CUM)) \times Perf Factor) + ACWP (CUM)$$

Used with Performance Factors 1, 2 and 3.

$$11. \quad \text{Cost at Completion - Perf Factor 1 \$} = \frac{ACWP(CUM)}{BCWP(CUM)}$$

$$12. \quad \text{Cost at Completion - Perf Factor 1 \%}$$

$$= \frac{CostAtCompletion(CAC)U sin gPerfFactor1}{ContractBudgetBase}$$

$$13. \quad \text{Cost at Completion - Perf Factor 2 \$} = \frac{ACWP(CUR)}{BCWP(CUR)}$$

$$14. \quad \text{Cost at Completion - Perf Factor 2 \%}$$

$$= \frac{CostAtCompletion(CAC)U sin gPerfFactor2}{ContractBudgetBase}$$

$$15. \quad \text{Cost at Completion - Perf Factor 3 \$} = \frac{1}{\left(\frac{BCWP(CUM)}{ACWP(CUM)} \times \frac{BCWP(CUM)}{BCWS(CUM)} \right)}$$

Use in Cost At Completion formula

$$16. \quad \text{Cost at Completion - Perf Factor 3 \%}$$

$$= \frac{CostAtCompletion(CAC)U sin gPerfFactor3}{ContractBudgetBase}$$

COST AT COMPLETION =

$$((CBB - BCWP (CUM) - MR) \times Perf Factor) + ACWP (CUM) + MR$$

Use with Performance Factors 4, 5, and 6.

$$17. \quad \text{Cost at Completion - Perf Factor 4 \$} = \frac{ACWP(CUM)}{BCWP(CUM)}$$

$$18. \quad \text{Cost at Completion - Perf Factor 4 \%} \\ = \frac{CostAtCompletion(CAC)U sin gPerfFactor4}{ContractBudgetBase}$$

$$19. \quad \text{Cost at Completion - Perf Factor 5 \$} = \frac{ACWP(CUR)}{BCWP(CUR)}$$

$$20. \quad \text{Cost at Completion - Perf Factor 5 \%} \\ = \frac{CostAtCompletion(CAC)U sin gPerfFactor5}{ContractBudgetBase}$$

$$21. \quad \text{Cost at Completion - Perf Factor 6 \$} = \frac{1}{\left(\frac{BCWP(CUM)}{ACWP(CUM)} \times \frac{BCWP(CUM)}{BCWS(CUM)} \right)}$$

Use in Cost At Completion formula

$$22. \quad \text{Cost at Completion - Perf Factor 6 \%} \\ = \frac{CostAtCompletion(CAC)U sin gPerfFactor6}{ContractBudgetBase}$$

COMMENTS GENERATED BY VALIDITY REPORT

<u>Comments</u>	<u>Conditions</u>
1. Task complete	$BCWP (CUM) = BAC$
2. ACWP exceeds BAC	$ACWP (CUM) > BAC$
3. ACWP equals BAC	$ACWP (CUM) = BAC$
4. Cost charged to completed task	$BCWP (CUM) = BAC$, in any prior month; and $ACWP (CUM)$ increases
5. ACWP charged to unopened task	$BCWS = 0, ACWP (CUM) > 0$
6. Schedule slip exceeds two months	$2 > \frac{SV(CUM)}{3MonthAverageBCWS}$
7. BCWS increase without ACWP increase	$BCWP (CUM)_{cp} > BCWP (CUM)_{lp}$ and $ACWP_{cp} = ACWP_{lp}$
8. ACWP increase without BCWP increase	$ACWP_{cp} > ACWP_{lp}$ and $BCWP_{cp} = BCWP_{lp}$
9. No BAC	$BAC = 0$
10. No LRE	$LRE = 0$
11. Estimate to complete is 0, yet task is not complete	$BAC > BCWP (CUM)$ and $LRE - ACWP (CUM) = 0$
12. Possible inconsistency in LRE, does not reflect cum cost overrun	$CUM CPI > LRE$
13. BAC or BCWS inconsistency, data should be corrected	$BCWS (CUM) > BAC$
14. BAC or BCWP inconsistency, data should be corrected	$BCWP (CUM) > BAC$
15. **ACWP greater than LRE	$ACWP (CUM) > LRE$

16.	BAC change	$BAC_{1p} \neq BAC_{cp}$
17.	BAC Change without corresponding LRE change	$BAC_{1p} \neq BAC_{cp}$ and $LRE_{1p} \neq LRE_{cp}$
18.	LRE change	$LRE_{1p} \neq LRE_{cp}$
19.	TCPI - LRE is greater than CPI by more than 5%	$TCPI - CPI > .05$
20.	Negative current month ACWP	$0 > ACWP (CUR)$
21.	Negative current month BCWP	$0 > BCWP (CUR)$
22.	Negative current month BCWS	$0 > BCWS (CUR)$
23.	SPI less than 80%	$SPI < 0.80$
24.	*LRE not within tolerance	

$$X = \frac{BAC}{\left(\frac{BCWP}{ACWP} \right) + or - \left(\frac{\left(\frac{BAC}{BCWP} \right)^2}{100} \right)}$$

*Note *check when contract is $\geq 40\%$ complete

**Note **(1p) denotes one month prior to the current period (cp)

The following validity checks are performed at the total contract level to reconcile formats, ensure target cost values are consistent, and ensure that Format 3 totals correctly.

- a. Format 3 BOP PM Baseline plus changes does not equal EOP PM Baseline.
- b. Format 3 BOP PM Baseline does not equal last month's EOP Baseline.
- c. Format 3 BCWS for report period does not equal Format 1 current period BCWS.
- d. Format 3 BOP Cumulative BCWS does not equal last month's Format 3 EOP Cumulative BCWS.
- e. Format 3 EOP cumulative BCWS does not equal Format 1 cumulative BCWS.
- f. Original Negotiated Cost plus Negotiated Changes does not equal the Current Negotiated Cost.
- g. Negotiated Cost plus Estimated Authorized Unpriced Work does not equal the Contract Budget Base.
- h. Contract Budget Base plus Reprogramming Adjustment for Budget does not equal Total Allocated Budget.
- i. Format 1 Current X does not equal Format 2 Current X.
X can = BCWS, BCWP, or ACWP.
- j. Format 1 Cumulative X does not equal Format 2 Cumulative X.
X can = BCWS, BCWP, or ACWP.
- k. Format 1 X does not equal Format 2 X.
X can = BAC or LRE.

EAC Formula Substitutions

EACs cannot be calculated using the specified formulas under certain conditions. Such a condition occurs, for example, when PA attempts to calculate the six month average EAC for a contract with only one month of data. In other instances, data may exist but is considered invalid. For example, PA defines BCWP, BCWS, or ACWP values that are zero or very near zero, as invalid. When these conditions arise, other values are substituted for the EAC calculations. These substitutions are indicated below.

3 Month Average:

NOTE: Calculating a 3 month average requires 4 months of data because a first "month" of data cannot be obtained until the second month of data is received and the Month1-Cumulative data is subtracted from Month2-Cumulative data.

For All Level I Elements except MR and UB:

If less than 4 months of valid data exists and valid cumulative BCWP or ACWP data do not exist for the month being calculated, the greater of either the LRE or BAC replaces the 3 month average. If valid cumulative BCWP and ACWP do exist for the month being calculated then the 3 month average is assigned:

- the greater of the ACWP or LRE when the BCWP is greater or equal to the BAC
- the LRE when the BCWP is less than the BAC.

For MR and UB Elements:

If less than 4 months of valid data exists the 3 month average is assigned the greater of the LRE or BAC values.

For All Lower Level Elements:

If less than 4 months of valid data exists, or if the calculated performance factor is zero, substitutions are made for the 3 month average in the same manner as they are for the non MR and UB Level I Elements.

6 Month Average:

NOTE: Calculating a 6 month average requires 7 months of data because a first "month" of data cannot be obtained until the second month of data is received and the Month1-Cumulative data is subtracted from Month2-Cumulative data.

For All Level I Elements except MR and UB:

If less than 7 months of valid data exists and valid cumulative BCWP or ACWP data do not exist for the month being calculated, the greater of either the LRE or BAC replaces the 6 month average. If valid cumulative BCWP and ACWP do exist for the month being calculated then the 6 month average is assigned:

- the greater of the ACWP or LRE when the BCWP is greater or equal to the BAC
- the LRE when the BCWP is less than the BAC.

For MR and UB Elements:

If less than 7 months of valid data exists the 6 month average is assigned the greater of the LRE or BAC values.

For All Lower Level Elements:

If less than 7 months of valid data exists, or if the calculated performance factor is zero, substitutions are made for the 6 month average in the same manner as they are for the non MR and UB Level I Elements.

Cumulative CPI:

For All Elements:

If either the cumulative BCWP or ACWP is zero, the cumulative CPI is assigned the greater of the LRE or BAC values.

Current CPI:

For All Level I Elements:

If either the current BCWP or ACWP is zero and valid cumulative BCWP or ACWP data do not exist for the month being calculated, the greater of either the LRE or BAC replaces the current CPI. If valid cumulative BCWP and ACWP do exist for the month being calculated then the current CPI is assigned:

- the greater of the ACWP or LRE when the BCWP is greater or equal to the BAC
- the LRE when the BCWP is less than the BAC.

For MR and UB Elements:

If either the cumulative BCWP or ACWP is zero the current CPI is assigned the greater of the LRE or BAC values.

For Lower Level Elements:

If either the current ACWP or BCWP is zero, and valid cumulative ACWP or BCWP do not exist for the month being calculated, the current CPI is assigned the greater of the LRE or BAC values. If valid cumulative ACWP and cumulative BCWP data do exist for the month being calculated, then the current CPI is assigned:

- the greater of the ACWP or LRE when the BCWP is greater or equal to the BAC
- the LRE when the BCWP is less than the BAC.

Cost & Schedule:

For All Elements Except MR and UB:

If the cumulative BCWS, BCWP, ACWP, cost weight, or schedule weight is zero and valid cumulative ACWP or BCWP do not exist for the month being calculated, the cost & schedule EAC is assigned the greater of the LRE or BAC values. If valid cumulative ACWP and cumulative BCWP data do exist for the month being calculated, then the cost & schedule EAC is assigned:

- the greater of the ACWP or LRE when the BCWP is greater or equal to the BAC
- the LRE when the BCWP is less than the BAC.

For MR and UB Elements:

If the cumulative BCWS, BCWP, ACWP, cost weight, or schedule weight is zero the cost & schedule EAC is assigned the greater of the LRE or BAC values.

NAVSEA 90:

For All Elements except MR and UB:

If cumulative ACWP and BCWS are equal to zero, or if the CBB plus the OTB equal zero the NAVSEA 90 EAC is assigned the greater value of the LRE or BAC.

For MR and UB Elements:

If the BCWS, BCWP or ACWP values are zero or close to zero the NAVSEA 90 formula is assigned LRE.

Performance Factor:

There are no substitutions.

Linear Regression:

Level I Elements except MR or UB:

If the BAC is near zero or if this is the first month of data and valid cumulative BCWP or ACWP data do not exist for the month being calculated, the LRE replaces the linear regression EAC. If valid cumulative BCWP and ACWP do exist for the month being calculated then the linear regression is assigned the value of the ACWP.

For MR and UB Elements:

If the BAC is near zero or if this is the first month of data the linear regression EAC is assigned the value of the LRE.

MICOM EAC:

For All Level I Elements:

If no valid top level cumulative CPI or top level SPI values exist, then the final MICOM EAC is assigned the top level BAC figure. If both a valid top-level CPI and SPI do exist but there is less than six months of valid data for the month being recalculated the PF is assigned the top level SPI value multiplied by the top level CPI value. The MICOM EAC is then calculated using this value for the PF. If, however:

- there are more than 6 months of valid data at the month being calculated, or
- there has been no activity for 6 months, or
- the top level BCWP is not valid, or
- a divide by zero occurs, then

the CPI is calculated by dividing the top level BCWP by the top-level ACWP.

For Lower Level Elements:

If there are less than 6 months of data and the cumulative ACWP is zero, the MICOM EAC is assigned the greater value of the LRE or BAC. If there are less than six months of data and the cumulative BCWS is zero but valid cumulative BCWP and ACWP exist then the MICOM EAC is assigned:

- the greater of the ACWP or LRE when the BCWP is greater or equal to the BAC
- the LRE when the BCWP is less than the BAC.

If the BCWS is zero and the BCWP is not valid then the MICOM EAC is assigned the greater value of the LRE or BAC.

If there are less than six months of data with valid cumulative ACWP and BCWS values the PF is assigned the value of the cumulative CPI in the MICOM EAC formula.

If more than 6 months of data exists the PF is assigned the value of the cumulative CPI in the MICOM EAC when:

- the cumulative BCWS and ACWP figures are not valid, or
- the 6 month cumulative BCWP and ACWP figures are less than or equal to zero, or
- the subtraction of these factors returns a value near or less than zero, or
- the division of these factors returns a value near or less than zero.

For Lower Level Elements:

If cumulative ACWP and BCWP data are equal to zero then the linear regression EAC is assigned the greater of the values of the LRE or BAC.

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Appendix B - EXTERNAL UTILITIES

APPENDIX B - EXTERNAL UTILITIES

HEWLETT-PACKARD GRAPHICS LANGUAGE (HPGL)

Plotting PA Graphs from a File

Graphs can be plotted from a file using the HPGL utility. This is very useful if you do not have a plotter connected to your computer or want to take the graphs to another computer connected to a plotter for output. If you have selected your PA graphs to plot to a file format you must have installed the HPGL utility.

Installing the Plot HPGL Utility

The Plot HPGL utility is a separate program that does not work from within the PA. It is run from the DOS prompt of the PC to which the plotter is connected (this may or may not be the same PC where PA is installed). If you did not install the Plot HPGL utility during installation or need to install it to a new computer, re-run the installation program using the utility parameter "UTIL" to install only the PA utility needed. You must first create a directory for the Plot HPGL Utility. Then, from See **Installing the PA Utilities** in Section 1.2 for further details.

The Plot HPGL Utility requires approximately 400k of hard disk space, 350k of conventional memory and DOS 3.3 or later. The following files are copied to the hard drive during installation:

PLOTHPGL.EXE, SETUP!.EXE, SETUP.BAT, PLOT.BAT, PORT.DAT

Using the Plot HPGL Utility

Using the Plot HPGL Utility is very straight forward! You will type the name of the batch file that tells the system to which port you are plotting. The first time you run the PLOT Utility you must setup and load your plotter and port settings. The SETUP.BAT file will run the SETUP!.EXE program, allow you to select your settings, and then automatically run the PLOTHPGL.EXE file for you. If you have turned off your PC, you must perform this setup routine again so that your plotter and port settings are re-loaded. If you have run setup and have exited from the Plot HPGL Utility but have NOT turned off your PC, you can simply run the Plot HPGL Utility without going through the setup process again.

To Run Setup

From the Plot HPGL Utility directory type SETUP and press Enter. The Setup menu will appear with three options: **Plotter**, **Port**, and **Done**.

Plotter - Select the plotter that corresponds to your plotter.

Port - Select the port settings that correspond to your configuration.

Done - Select Done to load your selections and run PLOTHPGL.EXE.

To Run the Plot HPGL Program:

To begin the Plot HPGL program, ensure that you are in the directory that contains the Plot HPGL Program. Then type **PLOTHPGL** and press Enter. You will then see the Plot HPGL Main Menu. There is one menu option, File. Press **Alt-F** to access the **Files** menu.(Figure B-1).

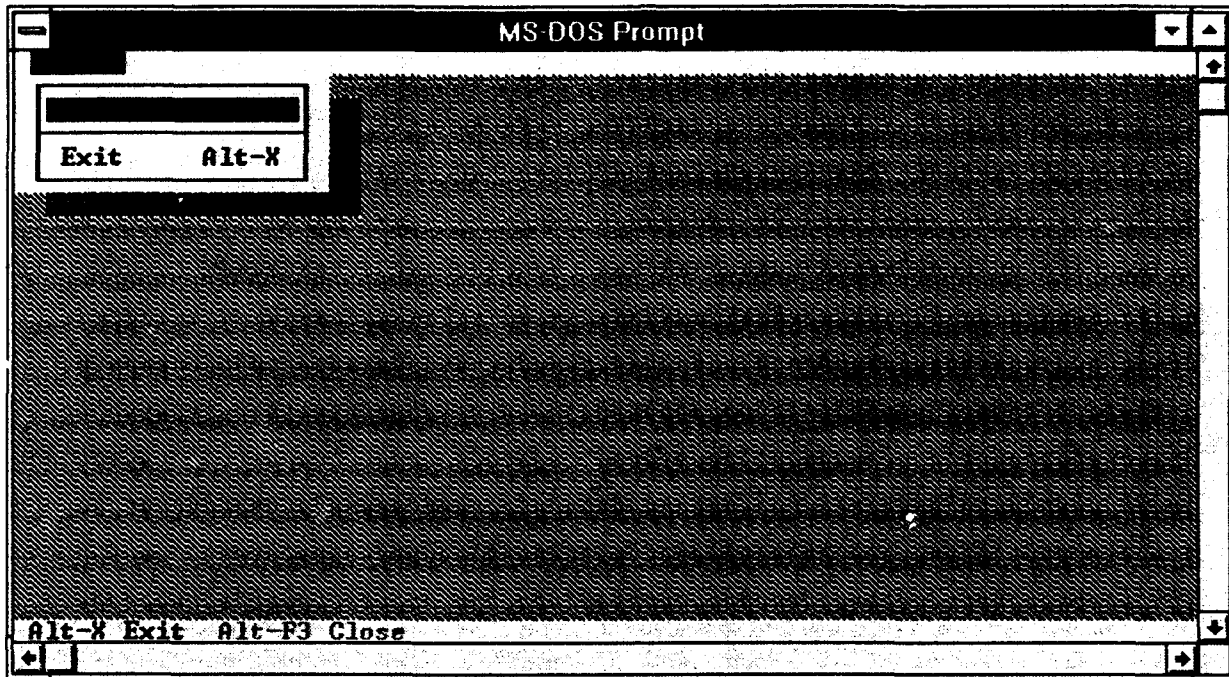


Figure B-1

The Files menu has two options, **Plot CHARTS** and **Exit**. Select Plot to access the Select Files dialog box. (Figure B-2)

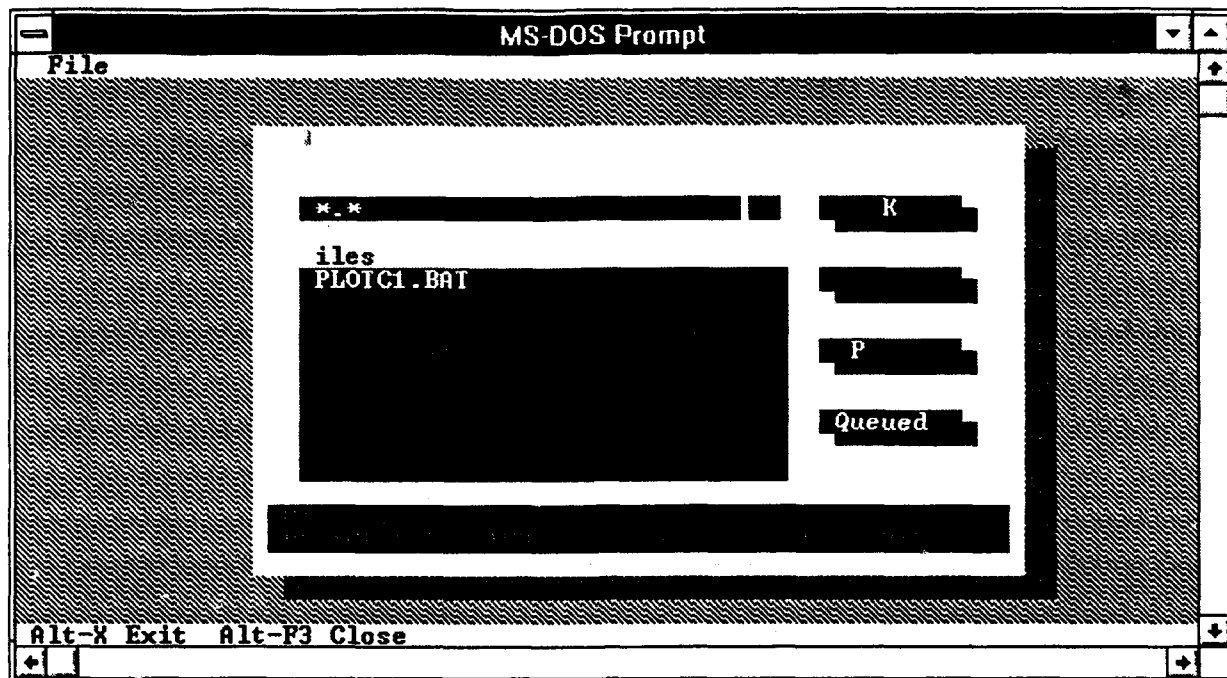


Figure B-2

Selecting Files to Print

The Select Files dialog box has several components. The **Files Box** displays all files in the current directory. The window above the Files Box shows the currently highlighted/selected file. The **OK** button sends the selected file to the print queue. The **Cancel** button clears all files from the queue and exits from the dialog box. The **Plot** button prints the files in the print queue. The **Queued** button displays the files in the print queue. The maximum number of files that may be in the queue is 30.

Keyboard Operation:

The Tab key moves the cursor between the various components of the dialog box. Use the arrow keys to highlight the file (or enter the filename) and press enter to select the file. Then press Tab to highlight the OK button. Press Enter on the OK button to send the file to the print queue. When you have selected all files to be printed (maximum of 30), select Plot to send the files to the printer.

Mouse Operation:

If you are using a mouse, simply click once on the filename to select the file and click OK to send the file to the print queue. Continue selecting files in this manner until all files are selected (maximum of 30). Click on the Plot button to send the files to the printer.

To **exit** the Plot HPGL Program, select the Cancel button to exit the dialog box. From the File menu select Exit or simply press **Alt-X**.

**Appendix C - AUTOMATED DATA TRANSFER SPECIFICATION
(FOR THE PA TRANSER FILE)**

Appendix C - AUTOMATED DATA TRANSFER SPECIFICATION (FOR THE PA TRANSFER FILE)

C.1 INTRODUCTION

This Automated Data Transfer Specification provides a narrative of the data transfer requirements for the PA Transfer File used by the Performance Analyzer. Consult Data Item Description DI-F-6000C, Cost Performance Report, 1 Dec 79, and DI-F-6010A, Cost Schedule Status Report, 1 Nov 79, for a description of the CPR or C/SSR reporting requirements. Automated data transfer will reduce paper flow, increase productivity of analysts, provide a more timely analysis, and reduce input errors to the databases mentioned above. The ultimate goal of this effort is to totally eliminate the paper transfer of cost performance data. Data transferred in this format can be sent via floppy disk, by modem, or over a network such as the Defense Data Network (DDN), assuming proper access arrangements have been made.

C.2 TRANSFER FILE OVERVIEW

The file type used to transfer data is called a "flat" or "ASCII" file. It is a text file. The file can be generated using most word processors (MS Word in the DOS text mode, WordPerfect with the "save a DOS file" option, etc.) or generated automatically from an existing automated performance measurement system. To facilitate an automated transfer from an existing system, a custom module that writes the structured ASCII format specified by this document is required to extract information from your database.

C.3 DISKETTE LABELING CONVENTIONS

Each diskette should have a physical label affixed to it which contains the following six items:

- Contractor Name
- Program Name
- Contract Number
- Report Date
- Diskette Set Number (e.g., 1 of 2)
- Report Type (i.e., CPR)

C.4 PHYSICAL TRANSFER OF DATA

C.4.1 DISKETTE SPECIFICATIONS

The floppy diskette on which the information is to be stored must have the following characteristics:

- 5-1/4", 3-1/2"
- Double Sided
- Double or high density soft sector
- 360K, 720K, or 1.2MB bytes
- MS-DOS compatible, Version 3.2 or higher

Note: Check with the file transfer receiving partner to determine floppy disk density and size requirements.

C.4.2 ELECTRONIC TRANSFER OF DATA

Files may be transferred via electronic means (e.g., modem, E-Mail, DDN, etc.). Arrangements must be made between sending and receiving parties before transmission.

C.5 FILE LAYOUT

The file used to transfer data is a flat or ASCII file with variable record length. Each transfer file represents a single month of data and is broken into eight sections. Each section begins with a header record and is concluded with an end of record. A record is defined as a single line within the file terminated with a carriage return. A record is composed of a single field or multiple fields that are separated by commas. The eight sections of the transfer file are described below. Note the appropriate section headers are shown in parentheses. Section headers are entered as the first record in each section. Each section is ended with the record **.END**. The transfer file is terminated with an **.EOF** (end of file) record. A sample transfer file is shown in Section 8 of this Appendix.

C.5.1 PA VERSION HEADER (.PA40) SEGMENT

The information is required by PA to determine and identify the PA version number. *This is a new field as of versio 4.0.* The only accepted value for this segment is **PA40**. Note: Value is a zero on the last place, not the letter O!

C.5.2 CONTRACT HEADER (.CONTRACT_INFO) SEGMENT

The information required in this section can be found at the top of CPR Formats 1-4. It includes items such as the Target Cost, Target Fee, Authorized Unpriced Work, etc. Data fields must be entered in the exact order specified in Section 7.1 of this Appendix. Each data field is entered as a separate record in this section (i.e., entered on its own line terminated with a carriage return). If there is no entry for the record, enter a carriage return to leave a blank line. For example, in the sample transfer file there is no contractor location (line 4) data to be entered, so a blank line is inserted.

C.5.3 WBS (.WBS_DATA) SEGMENT

Cumulative data must be entered for each lowest level reporting element of the WBS. Fields required for each lowest level element consist of: (1) WBS Number, (2) BCWS, (3) BCWP, (4) ACWP, (5) BAC, (6) LRE, (7) Reprogramming Adjustment Cost, and (8) Reprogramming Adjustment for Budget. Enter the fields in the exact order specified in Section 7.2. Each lowest level WBS element is reported on a single line (record) with commas separating each field. A carriage return is required after the Reprogramming Adjustment for Budget to conclude the record. All records for WBS elements will have eight entries separated by commas. For example, if no reprogramming adjustment has occurred, a 0 (zero) would be entered in the two reprogramming adjustment fields (see the Section 8 of this Appendix for examples). Item 6 item 9 details the ground rules associated with the reporting of indirect and other costs. The order in which the WBS elements (or records) are entered is not important. A WBS number cannot have blank spaces within the identifier (e.g., WBS number 1000 is acceptable, 10 00 is not).

C.5.4 FUNCTIONAL (.FUNCTIONAL_DATA) SEGMENT

Cumulative data must be entered for each lowest level reporting element of the Functional Breakdown Structure. Fields required for each lowest level element consist of: (1) Functional Number, (2) BCWS, (3) BCWP, (4) ACWP, (5) BAC, (6) LRE, (7) Reprogramming Adjustment Cost, and (8) Reprogramming Adjustment for Budget. Enter the fields in the exact order specified in Section 7.3. Each lowest level functional element is reported on a single line, with commas separating each field. A carriage return is required after the Reprogramming Adjustment for Budget to conclude each record. All records for Functional elements must have eight entries separated by commas. For example, if no reprogramming adjustment has occurred, a 0 (zero) would be entered in the two reprogramming adjustment fields (see Section 8 of this Appendix for examples). If the contractor does not normally use Functional numbers to identify Functional elements, the Government and contractor must agree on Functional numbers as codes to facilitate data transfer. The order in which the Functional elements (or records) are entered is not important. A Functional number cannot have blank spaces within the identifier (e.g., Functional number 1000 is acceptable, 10 00 is not).

C.5.5 BASELINE (.BASELINE) SEGMENT

Baseline data is entered at the total contract level for Beginning of Period (BOP) and End of Period (EOP) data. All entries are made in a non-cumulative basis except for the "BCWS cumulative to-date" fields. Enter each field specified on a single line terminated with a carriage return. Fields must be entered in the exact order specified in Section 7.4 of this Appendix.

C.5.6 MANPOWER LATEST REVISED ESTIMATE (.MANPOWER_LRE) SEGMENT

Enter the fields specified in Section 7.5 of this Appendix for each lowest level reporting functional element in a non-cumulative amount (except for the "Actual End of Current Period" field). Each field must be separated by a comma, with a carriage return at the end of each line. There will be the same number of records in .MANPOWER_LRE and .FUNCTIONAL_DATA.

C.5.7 MANPOWER BUDGET AT COMPLETE (.MANPOWER_BAC) SEGMENT

Manpower data to BAC can be entered in the same manner as Manpower to LRE (see Section 5.5) or at the total contract level. Space and Missile Systems Center requires that projected manpower data be submitted at the total contract level equal to the Budget at Complete figure. To support manpower reporting at the total contract level, enter all fields specified in Section 7.6 of this Appendix at the total contract level. Each field must be separated by a comma, with a carriage return at the end of the record. To support manpower reporting at the lowest level of the functional structure, follow the instructions in Section 5.5, but use the .MANPOWER_BAC as the header to identify the Manpower to Budget at Complete section.

C.5.8 WBS NARRATIVE (.WBS_NARRATIVE) SEGMENT

This section is used to transfer the narrative text data associated with Format 5 of the CPR for the total contract level and WBS elements. Data shall be transferred for all elements (not just lowest level) that exceed contractual thresholds. Narrative data shall be linked to specific WBS elements by WBS Number as explained in Section 7.7 of this Appendix.

C.5.9 FUNCTIONAL NARRATIVE (.FUNC_NARRATIVE) SEGMENT

This section is used to transfer the narrative text data associated with Format 5 of the CPR for the total contract level and Functional elements. Data shall be transferred for all elements (not just lowest level) that exceed contractual thresholds. Narrative data shall be linked to specific Functional elements by Functional Number as explained in Section 7.8 of this Appendix.

C.5.10 WBS EXAMPLE

The data within each of the above sections must be entered in the exact order specified in Section 7 of this Appendix. Only those elements that cannot be calculated are transferred. For example, the WBS and Functional structures require the input of cumulative data for the lowest level reporting elements only.

The data is processed by the Performance Analyzer to obtain current month data, subtotals, and totals. The following elements are always reported in the WBS section (not the Functional section) along with lowest level WBS elements: 1) Undistributed Budget, 2) Cost of Money, 3) Overhead, 4) G&A, and 5) Management Reserve. Figure C-1 shows a sample WBS with shaded boxes indicating the lowest level elements that would appear in the WBS section of the transfer file.

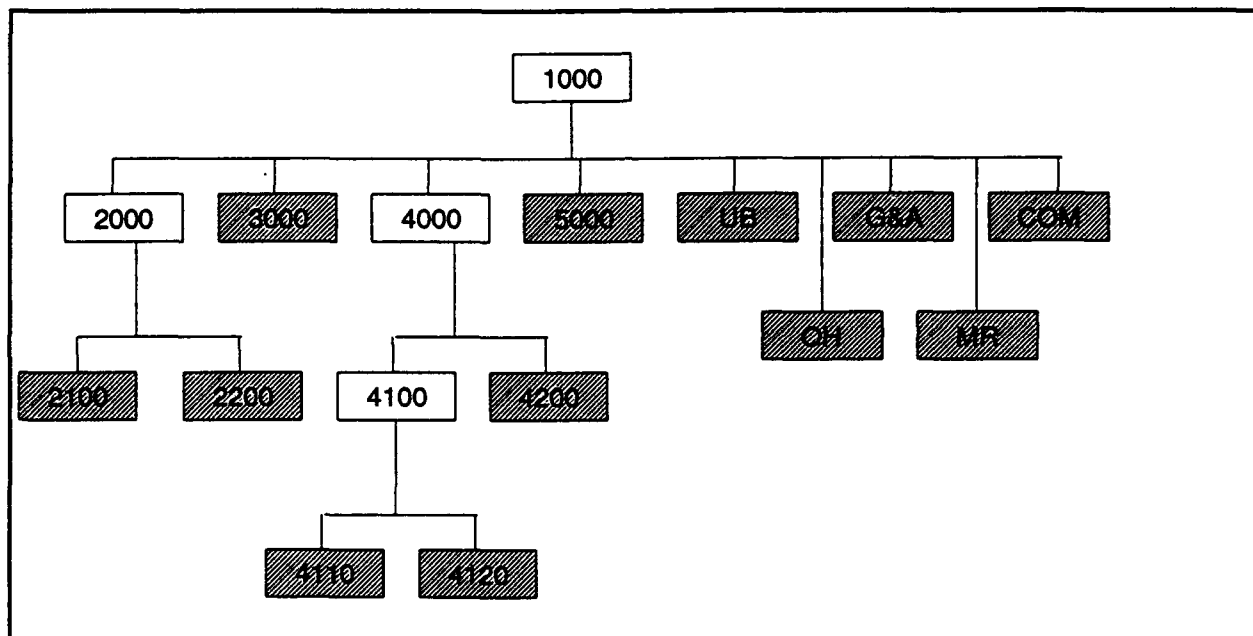


Figure C-1

C.6 GROUND RULES

In order to achieve a successful data transfer, the following items **must** be strictly adhered to.

1. The Work Breakdown structure (WBS) and Functional Structure for the reporting levels (items detailed on the CPR or C/SSR) **must match exactly**, both the Government and contractor. These structures cannot be changed without approval from the Government. The transfer process requires only the lowest level data for each WBS and/or Functional structure (only those elements that have no children are reported). Data is then summed in accordance with the appropriate structure to obtain subtotals and totals. If a reporting level element is added or deleted, or if the summation process of either structure is changed, the transfer process will not be successful until both parties (Government and contractor) have implemented the change.
2. The WBS and Functional structure must sum from the bottom-up. If summary-level planning packages are used at a parent level, a child must be created below the parent that equals the amount of budget in the planning package (see Figure C-2).

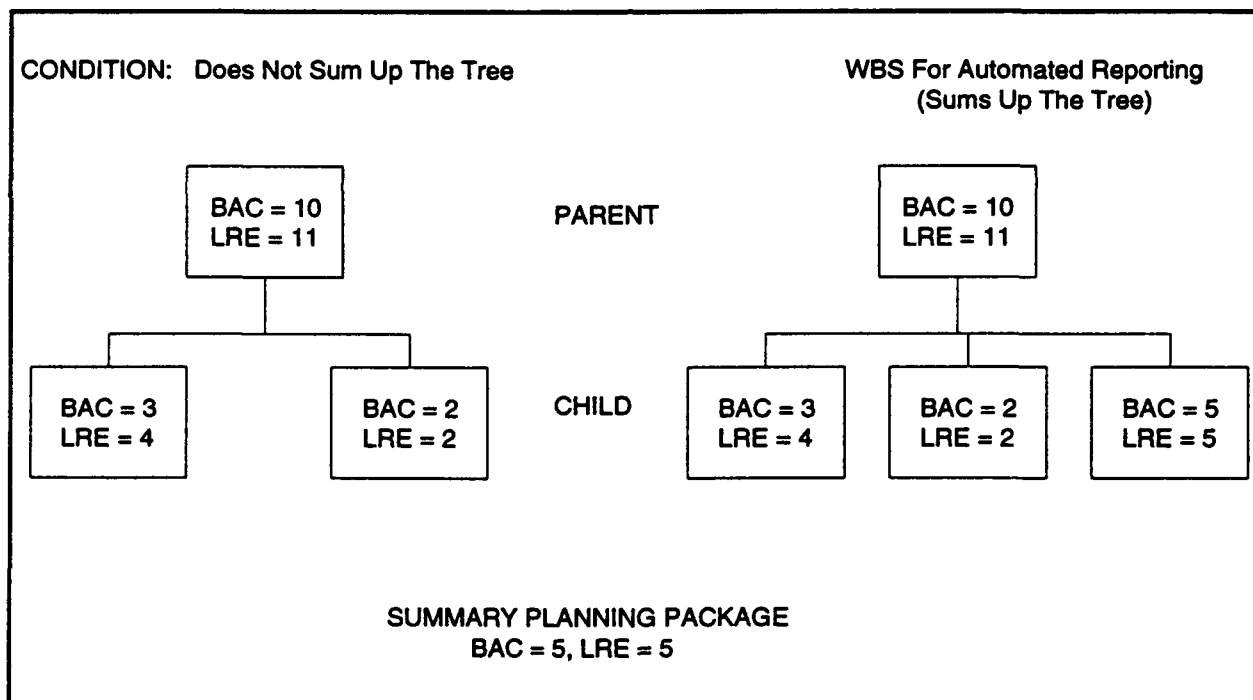


Figure C-2

3. The WBS and Functional Structure element numbers cannot be changed without Government approval. The codes are used in the import process to link data to the appropriate record in the Government data base.

4. Dollar amounts (e.g., BCWS, BCWP, etc.) are reported in thousands with no commas or decimal places. For example, if the BCWS were equal to \$100,000 it would be entered as 100. Commas are used to separate fields, but they are not used within a field.

5. Character fields are defined by a maximum length. Do not exceed the maximum length specified in the data dictionary (Section 7, Data Base Definitions).

6. Date fields are entered in one of two formats. Exact dates are entered in the format DD/MMM/YY (e.g., 01/DEC/88), and a given month (such as report month) in the format MMM/YY (e.g. JAN/88). See Section 7 of this Appendix for the required format of a specific field.

7. Percentage or decimal fields (such as share ratios) are entered in a 9-digit field that includes a floating decimal point. However, numbers are rounded to 1 decimal point upon saving data. For example, 9.5% fee would be entered as 9.5. If the number 1.23456 were entered, it would be saved as 1.2. The maximum input is 999999999.

8. The Target Profit/Fee % field is entered in a 9-digit field that includes a floating decimal point. However, numbers are rounded to 1 decimal point upon saving data. For example, 9.5% fee would be entered as 9.5. If the number 1.23456 were entered, it would be saved as 1.2. The maximum input is 999999999.

9. The following elements are always reported as the lowest level reporting elements in the WBS structure. Use the WBS codes shown below to identify the appropriate element.

<u>Description</u>	<u>WBS Code</u>
Overhead (OH)	\$OH
General and Administrative (G&A)	\$G&A
Cost of Money (COM)	\$COM
Undistributed Budget (UB)	\$UB
Management Reserve (MR)	\$MR

Do not use the codes shown above for any other lowest level reporting element.

10. If a record has no data, enter a carriage return to leave a blank line.

11. If you are transmitting C/SSR data, only the CONTRACT_INFO and WBS_DATA sections apply in the transfer file.

12. At the end of every file, an end-of-file record must be entered. Type .EOF as the final record in each file to be transferred.

Appendix C - Automated Data Transfer Specification

13. If the contractor desires to provide other narrative text information explaining changes in the WBS/Functional structure, or other instructions to complete the transfer process, it should be included on the transfer disk in a flat file named "README.DOC".

14. Text included in the Narrative section shall contain only ASCII characters.

C.7 DATA DICTIONARY FOR PA TRANSFER FILE

Database definitions are organized in the same sequence as presented in Section 5 of this appendix. Each element is listed in the order required, with a short description, character type identification, and character width.

DATA ELEMENT	FIELD TYPE	DESCRIPTION
.PA40		PA version header
.CONTRACT_INFO		Contract segment header
Contract number	C16	Contract number
Program Name	C20	Program name and number
Contractor Name	C15	Name of reporting contractor
Contractor Location 1	C30	Enter division of contractor (ie: Space)
Contractor Location 2	C30	Contractor street address
Contractor Location 3	C30	Special instructions (ie: mail, drop no.)
Contractor Location 4	C30	City, State (ie: CA, FL, etc. and zip)
Contract Phase	C4	RDT&E or production contract phase
Contract Change	C12	Latest contract change or agreement
Contract Type	C10	Contract Type (ie: FPIF, CPIF)
Start Date	C9	CPR C/SSR start date
End Date	C9	CPR C/SSR end date
Current Date	C6	System date being reported
Dollar View (H or T)	C1	Hundreds or Thousands
Report Type	C5	CPR OR C/SSR
Security	C3	Security Classification
R&D Quantity	N4	No. of items being procured on contract
Production Quantity	N4	No. of items being produced on contract
Negotiated Cost	N10.1	Contract dollar value as of cutoff date
Unpriced Work	N10.1	Authorized unpriced work
Target Fee	N10.2	Fee percentage or profit dollar amount
Target Cost	N10.1	NCC plus profit/fee for definitized effort
Estimated Cost At Completion	N10.1	Estimated final contract price
Share Above	N7.2	Cost sharing ratio for costs above NCC
Share Below	N7.2	Cost sharing ratio for costs under NCC
Contract Ceiling	N10.1	Ceiling price for definitized effort
Estimated Ceiling	N10.1	Estimated ceiling price for defin & undefin effort
Target Cost	N10.1	Value neg. in original contract (no fee/profit)
Negotiated Contract Cost	N10.1	Cost in original contract (no fee/profit)
Contractor Budget Base	N10.1	Sum of CTC + Est Cost Auth Unpriced Work
Total Allocated Budget	N10.1	Sum of budgets for performance of contract effort
Contract Start Date	C9	Contract start date in format DD/MMM/YY
Definitization Date	C9	Date the contract was definitized
Last Item Date	C9	Last item schedule date for delivery to government

Contract Completion Date	C9	Completion date in recent contract change
Contractor Est. Comp. Date	C9	Latest Revised Estimate of contract completion
Cum BCWS	N10.1	Total Cum BCWS for month reported
Cum BCWP	N10.1	Total Cum BCWP for month reported
Cum ACWP	N10.1	Total Cum ACWP for month reported
BAC	N10.1	Total Cum BAC for month reported
LRE	N10.1	Total Cum LRE for month reported
Reprogramming Schedule Adj	N10.1	Schedule Variance Adjustment related to an OTB
Cost Variance Adj	N10.1	Cost Variance Adjustment related to an OTB
OTB	N10.1	Report month OTB was in the CPR
Approver Name	C30	Name of person approving CPR
Approver Title	C30	Title of person approving CPR
Approver Organization	C30	Organization approving CPR
Submission Date	C9	Date the report was submitted
.END		
.WBS_DATA		
Element Number	C15	WBS element number
Cum BCWS	N10.1	Cum Budgeted Cost of Work Scheduled
Cum BCWP	N10.1	Cum Budgeted Cost of Work Performed
Cum ACWP	N10.1	Cum Actual Cost of Work Performed
BAC	N10.1	Budget at Completion
LRE	N10.1	Latest Revised Estimate
Cost	N10.1	Reprogramming adjustment cost
Budget	N10.1	Reprogramming adjustment budget
\$OH	C15	Overhead
\$COM	C15	Color of Money
\$G&A	C15	General & Administrative
\$UB	C15	Undistributed Budget
\$MR	C15	Management Reserve
.END		
.FUNCTIONAL_DATA		
Element Number	C15	WBS element number
Cum BCWS	N10.1	Cumulative Budgeted Cost of Work Scheduled
Cum BCWP	N10.1	Cumulative Budgeted Cost of Work Performed
Cum ACWP	N10.1	Cumulative Actual Cost of Work Performed
BAC	N10.1	Budget at Completion
LRE	N10.1	Latest Revised Estimate
Cost	N10.1	Reprogramming adjustment cost
Budget	N10.1	Reprogramming adjustment budget
.END		
.BASELINE		
Baseline Cumulative to Date	N10.1	BOP Total-Cum BCWS for current month
Baseline Current Period	N10.1	BOP Non-Cum BCWS for current period
Baseline Current Period + 1	N10.1	BOP Non-Cum BCWS forecast current month + 1
Baseline Current Period + 2	N10.1	BOP Non-Cum BCWS forecast current month + 2
Baseline Current Period + 3	N10.1	BOP Non-Cum BCWS forecast current month + 3
Baseline Current Period + 4	N10.1	BOP Non-Cum BCWS forecast current month + 4
Baseline Current Period + 5	N10.1	BOP Non-Cum BCWS forecast current month + 5
Baseline Current Period + 6	N10.1	BOP Non-Cum BCWS forecast current month + 6
Baseline Period 1	N10.1	BOP Non-Cum BCWS for current specified period 1

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Baseline Period 2	N10.1	BOP Non-Cum BCWS for current specified period 2
Baseline Period 3	N10.1	BOP Non-Cum BCWS for current specified period 3
Baseline Period 4	N10.1	BOP Non-Cum BCWS for current specified period 4
Budget to Complete	N10.1	BOP Non-Cum BCWS to complete
Undistributed Budget	N10.1	BOP amount in Undistributed Budget
Cum to Date	N10.1	EOP Total Cum BCWS for current report month
Current 1	N10.1	EOP BCWS forecast current month + 1
Current 2	N10.1	EOP BCWS forecast current month + 2
Current 3	N10.1	EOP BCWS forecast current month + 3
Current 4	N10.1	EOP BCWS forecast current month + 4
Current 5	N10.1	EOP BCWS forecast current month + 5
Current 6	N10.1	EOP BCWS forecast current month + 6
Period 1	N10.1	EOP BCWS forecast for current specified period 1
Period 2	N10.1	EOP BCWS forecast for current specified period 2
Period 3	N10.1	EOP BCWS forecast for current specified period 3
Period 4	N10.1	EOP BCWS forecast for current specified period 4
Budget To Complete	N10.1	EOP Non-Cum Budget to Complete
Undistributed Budget	N10.1	EOP amount in Undistributed Budget
Baseline Period 1	N2	Number of man months in specified period 1
Baseline Period 2	N2	Number of man months in specified period 2
Baseline Period 3	N2	Number of man months in specified period 3
Baseline Period 4	N2	Number of man months in specified period 4
Baseline To Complete	N2	Number of man months to complete period
Baseline Period 1 Title	C4	Title for specified period 1, R=Remaining pd in FY
Baseline Period 2 Title	C4	Title for specified period 2, R=Remaining pd in FY
Baseline Period 3 Title	C4	Title for specified period 3, R=Remaining pd in FY
Baseline Period 4 Title	C4	Title for specified period 4, R=Remaining pd in FY
.END		
.MANPOWER_BAC		
Element Number	C15	WBS element number
Baseline Plan Cumulative	N10.1	Cum to Date planned manpower to BAC
Baseline Plan Current	N10.1	Planned manpower for current period
Current 1	N10.1	Non-Cumulative man-months for current period + 1
Current 2	N10.1	Non-Cumulative man-months for current period + 2
Current 3	N10.1	Non-Cumulative man-months for current period + 3
Current 4	N10.1	Non-Cumulative man-months for current period + 4
Current 5	N10.1	Non-Cumulative man-months for current period + 5
Current 6	N10.1	Non-Cumulative man-months for current period + 6
Period 1	N10.1	Non-Cumulative man-months for specified period + 1
Period 2	N10.1	Non-Cumulative man-months for specified period + 2
Period 3	N10.1	Non-Cumulative man-months for specified period + 3
Period 4	N10.1	Non-Cumulative man-months for specified period + 4
Budget to Complete	N10.1	Non-Cumulative man-months to complete
.END		
.MANPOWER_LRE		
Functional Number	C15	Category number for contractor internal structure
Actual Current Period	N10.1	Actual man-months for current report period
Actual End of Current Pd Cum	N10.1	Man-months to date at end of current period
Planned Current Period	N10.1	Planned manpower for the current period

LRE Current + 1	N10.1	Non-Cumulative man-months for current month + 1
LRE Current + 2	N10.1	Non-Cumulative man-months for current month + 2
LRE Current + 3	N10.1	Non-Cumulative man-months for current month + 3
LRE Current + 4	N10.1	Non-Cumulative man-months for current month + 4
LRE Current + 5	N10.1	Non-Cumulative man-months for current month + 5
LRE Current + 6	N10.1	Non-Cumulative man-months for current month + 6
LRE Period 1	N10.1	Non-Cumulative man-months for specified period + 1
LRE Period 2	N10.1	Non-Cumulative man-months for specified period + 2
LRE Period 3	N10.1	Non-Cumulative man-months for specified period + 3
LRE Period 4	N10.1	Non-Cumulative man-months for specified period + 4
To Complete	N10.1	Non-Cumulative man-months to complete
.END		
.WBS_NARRATIVE		
text line 1		
text line 2		
etc.		
.END		
.FUNC_NARRATIVE		
text line 1		
text line 2		
etc.		
.END		
.EOF		

C.7.1 CONTRACT INFORMATION

The information contained in this section is located at the top of CPR Formats 1-4. It includes items such as the Target Cost, Target Fee, Authorized Unpriced Work, etc. Data fields must be entered in the exact order specified. Each data field is entered as a separate record in this section (i.e., entered on its own line terminated with a carriage return). Start this section with **.CONTRACT_INFO** as the first record and enter **.END** as the final record.

C.7.2 WORK BREAKDOWN STRUCTURE (WBS) DATA

Enter cumulative data for each lowest level reporting element. Fields required for each lowest level element consist of: (1) WBS Number, (2) BCWS, (3) BCWP, (4) ACWP, (5) BAC, (6) LRE, (7) Reprogramming Adjustment Cost, and (8) Reprogramming Adjustment for Budget. Each lowest level WBS element is reported on a single line (record) with commas separating each of the eight fields. For example, if no reprogramming adjustment has occurred, 0 (zero) would be entered in the two reprogramming adjustment fields. A carriage return is required after the Reprogramming Adjustment for Budget to conclude the record. See Section 6 of this Appendix for additional ground rules regarding the reporting of indirect and other cost. Start this section with **.WBS_DATA** as the first record and enter **.END** as the final record.

Field Name	Description	Type	Width
------------	-------------	------	-------

C.7.3 BASELINE INFORMATION

Baseline data is entered at the total contract level for Beginning of Period (BOP) and End of Period (EOP) data. Enter each field specified on a single line terminated with a carriage return.

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Start this section with **.BASELINE** as the first record and enter **.END** as the final record.

C.7.4 MANPOWER DATA (LRE)

Enter the fields specified for each lowest level reporting functional element in a non-cumulative amount. Each field must be separated by a comma with a carriage return at the end of each line. One line of data (record) represents all data associated with a selected functional element. Start this section with **.MANPOWER_LRE** as the first record and enter **.END** as the final record.

C.7.5 MANPOWER DATA (BAC)

Manpower data to BAC can be entered in the same manner as Manpower to LRE or at the total contract level. Space and Missile Systems Center requires that projected manpower data be submitted at the total contract level that equals the Budget at Complete figure. Each field must be separated by a comma with a carriage return at the end of the record. Start this section with **.MANPOWER_BAC** as the first record and enter **.END** as the final record. To support manpower reporting at the lowest level of the functional structure, follow the instructions for Section 7.5, but use the **.MANPOWER_BAC** header to identify the section.

Field Name	Description	Type	Width
------------	-------------	------	-------

C.7.6 WBS NARRATIVE INFORMATION (.WBS_NARRATIVE)

The WBS Narrative section shall start with a **.WBS_Narrative** record and terminate with a **.END** record. The WBS Narrative section shall be comprised of subsections for each out-of-tolerance WBS element and a total contract (Level 1) subsection to explain Baseline changes, Manpower changes, and Summary contract status. Each subsection shall be linked to a specific WBS element by starting the subsection with the appropriate WBS Number in brackets as the starting record and end in brackets as the terminating record. The order of the subsections is not important. Text within subsections shall include only ASCII characters, but is otherwise free form.

Blocks of text within a subsection will be automatically wrapped after eighty (80) characters (including blank space) until a carriage return is encountered, which starts a new line. When generating the transfer data, it may be easiest to use a word processor with the margins set to 0 (left), 79 (right) and print the document to a DOS text or ASCII text file. This file can then be appended to the file that contains the monthly performance data.

CAUTION: If the eighty (80) column wrap specification is ignored and a table or column of numbers exceeds eighty (80) characters, it will be wrapped by the import module at the eightieth character, thus causing undesirable formatting in the PA database. Use the DOS **Type** command to preview how the data will appear in the PA database. See Section 8 of this Appendix for an example.

C.7.7 FUNCTIONAL NARRATIVE INFORMATION

The Functional Narrative section shall start with a **.Func_Narrative** record and terminate with a **.END** record. The Functional Narrative section will be comprised of subsections for each out-of-tolerance functional element. Each subsection shall be linked to a specific Functional element by starting the subsection with the appropriate Functional Number in brackets as the

starting record and end in brackets as the terminating record. The order of the subsections is not important. Text within subsection shall include only ASCII characters, but is otherwise free form. See Section 7.7 of this Appendix (WBS Narrative Information) for more details on text formatting. Also see Section 8 of this Appendix for an example.

C.8. SAMPLE TRANSFER FILE FORMAT

The example below displays a sample PA 4.0 transfer file. Descriptive information in italics shows format changes from PA 3.2. Description data will not show in your transfer file and is provided for informational purposes only. Some of the descriptive information is abbreviated due to space limitations; refer to the data dictionary (Section 7) for further information on each data element. This represents a single file (page breaks have no meaning).

.PA40	<i>PA version header</i>
.CONTRACT_INFO	
F04695-86-C-0050	
MOH-2	
MEGA HERZ ELEC & VEN	
BARABOU WISCONSIN	
PROD	
FPIF	
01 JUN 87	
30 JUN 87	
JUN 87	
H	<i>\$ units. H - hundreds or T - thousands</i>
CPR	<i>Report type. CPR or C/SSR</i>
U	<i>Classification</i>
1	<i>R&D quantity</i>
52	
20797.0	
80.00	
80.00	
26200.0	
22000.0	
01 SEP 86	
15 MAR 88	
7281.0	
6945.0	
.END	
.WBS_DATA	
2100, 295.0, 283.0, 300.0, 618.0, 622.0, 0.0, 0.0	
2200, 235.0, 241.0, 267.0, 283.0, 283.0, 0.0, 0.0	
\$OH, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0	
\$COM, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0	
.END	

.FUNCTIONAL_DATA

2000, 883.0, 870.0, 931.0, 1388.0, 1422.0, 0.0, 0.0
3000, 1241.0, 1252.0, 1270.0, 1912.0, 1978.0, 0.0, 0.0
.END

.BASELINE

5633.0

1645.0

.END

.MANPOWER_BAC

2000, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0,
0.0, 0.0, 0.0
3000, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0,
0.0, 0.0, 0.0
.END

.MANPOWER_LRE

2000, 2.0, 35.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 6.0,
0.0, 0.0, 0.0, 0.0
3000, 5.0, 71.0, 4.0, 3.0, 3.0, 7.0, 8.0, 6.0, 5.0, 8.0,
0.0, 0.0, 0.0, 0.0
.END

.WBS_NARRATIVE

[1000]

This is a test of the format 5 narrative.

[END]

STATUS

- X 1. Manpower CPR Format - 4 does not add correctly
ACCI 2. Manpower loading by WBS or Functional
ACCI 3. Variance adjustment (schedule) - OTB shows in all CPR's forward - back. Should
be OTB date forward.

[END]

.END

.FUNC_NARRATIVE

.END

.EOF

Appendix D - GLOSSARY

APPENDIX D - GLOSSARY

ACWP	Actual Cost Of Work Performed
AD	Advanced Development
AFSC	Air Force Systems Command
AI	Artificial Intelligence
ANSI	American National Standards Institute
APPROP	Appropriation
ASC	Accredited Standards Committee
ASCII	American Standard Code For Information Interchange
BAC	Budget At Complete
BCWP	Budget Cost Of Work Performed
BCWR	Budgeted Cost Of Work Remaining
BCWS	Budget Cost Of Work Scheduled
BMR	Business Management Review
BOP	Beginning Of Period
C/SCSC	Cost/Schedule Control Systems Criteria
C/SSR	Cost/Schedule Status Report
CAC	Cost At Complete
CAO	Contract Administration Office
CAPPS	Contract Appraisal System
CARS	Consolidated Acquisition Reporting System
CBB	Contract Budget Base
CFSR	Contract Funds Status Report
COM	Cost Of Money
COMP	Complete
COMPL	Completion
CONTR	Contractor
CP	Current Period
CPI	Cost Performance Index
CPR	Cost Performance Report
CUM	Cumulative
CURR	Current (As In Current Month)
CV	Cost Variance
DAES	Defense Acquisition Executive Summary
DDN	Defense Data/Digital Network
DFARS	Defense Federal Acquisition Regulation Supplement
DOS	Disk Operating System
DSMC	Defense Systems Management College
EAC	Estimate At Complete (Normally Government)
EDI	Electronic Data Interchange
EGA	Enhanced Graphics Adapter
EIS	Executive Information System
EOP	End Of Period

EPC	Estimated Price At Completion
ESC	Escape
EST	Estimate
ETC	Estimate To Complete
EVAL	Evaluation
EXEC	Executive
FAR	Federal Acquisition Regulation
FSD	Full Scale Development
FUNC	Functional
FY	Fiscal Year
G&A	General And Administrative
HP	Hewlett-Packard
HPGL	Hewlett-Packard Graphics Language
ICA	Independent Cost Analysis/Assessment
INS	Insert
KTR	Contractor
LAN	Local Area Network
LL	Lowest Level
LRE	Latest Revised Estimate (Normally Contractor)
LVL	Level
MAX	Maximum
MIN	Minimum
MO	Month
MR	Management Reserve
MS	Milestone
N/A	Non-Add
OH	Overhead
OPR	Office Of Primary Responsibility
ORIG	Original
OSD	Office Secretary Of Defense
OTB	Over Target Baseline
PA	Performance Analyzer
PC	Personal Computer
PERF	Performance
PF	Performance Factor
PFR	Program Financial Review
PM	Program Manager
PMA	Program Management Authorization
PMB	Performance Measurement Baseline
PMR	Program Management Review
PO	Program Office
POC	Point Of Contact
POP	Period of Performance
PRJ	Project
PROD	Production

QTY	Quantity
RAM	Random Access Memory
RMR	Resource Management Review (replaces BMR used in PA 3.2)
RO	Read/Only
RW	Read/Write
SDIO	Strategic Defense Initiative Organization
S/L	Straight Line
SCH	Schedule
SDIO	Strategic Defense Initiative Organization
SMC	Space And Missile Systems Center
SPI	Schedule Performance Index
SPO	System Program Office
SV	Schedule Variance
TAB	Total Allocated Budget
TC	To Complete
TCPI-BAC	To Complete Performance Index To BAC
TCPI-LRE	To Complete Performance Index To LRE
TGT	Target
UB	Undistributed Budget
VAC	Variance At Complete
VAR	Variance
VGA	Virtual Graphics Adapter
WBS	Work Breakdown Structure

Appendix E - ANSI X12 EDI

Appendix E - ANSI X12 EDI

Performance Analyzer Version 4.0 X12 EDI Record Layout

E.1 Record Layout Notes

1. The PA uses a "~" to delimit fields, variable length format.
2. Each record equals a segment in the X12 standard.
3. The records match the 839 X12 standard segment sequence. It includes only those segments between the ST and SE segments.
4. Fields match the 839 X12 standard data element (field) sequence for each segment.
5. Where PA has a character limitation (for example, on Contract Number) it is so noted in the length column.
6. Where PA does not use data elements at the end of a segment, they are omitted.
7. For details on allowed qualifiers, please refer to the 839 Convention Guide (March 94 release).

E.2 Record Layout Structure

Record 01	Segment/Position	Data Element	Length
	BCS01	353 - T/Set Purpose Code	2
	BCS02	373 - Date	6
	BCS03	367 - Contract Number	16
	BCS04	373 - Date	6
	BCS05	1166 - Contract Type Code	2
	BCS06	369 - Free-Form Description	20
	BCS07	127 - Reference Number	15
	BCS08	1193 - Program Type Code	2
	BCS09	786 - Security Level Code	2
	BCS10	954 - Percent	5
	BCS11	954 - Percent	5
	BCS12	355 - Unit or Basis for Measurement	2

Record 02	Segment/Position	Data Element	Length
	REF01	128 - Reference Number Qualifier	2
	REF02	127 - Reference Number	30

Record 03	Segment/Position	Data Element	Length
	DLV01	330 - Quantity Ordered	9
	DLV02	235 - Product/Service ID Qualifier	2
	DLV03	234 - Product/Service ID	10

Record 04	Segment/Position	Data Element	Length
	AMT01	522 - Amount Qualifier Code	2
	AMT02	782 - Monetary Amount	15

Record 05	Segment/Position	Data Element	Length
	PCT01	1004 - Percent Qualifier	2
	PCT02	954 - Percent	5

Record 06	Segment/Position	Data Element	Length
	DTM01	374 - Date/Time Qualifier	3
	DTM02	373 - Date	6

Record 07	Segment/Position	Data Element	Length
	CFT01	755 - Report Type Code	2
	CFT02	355 - Unit or Basis for Measurement	2

Record 08	Segment/Position	Data Element	Length
	CAL01	128 - Reference Number Qualifier	2
	CAL02	127 - Reference Number	12
	CAL03	Not Used	2
	CAL04	Not Used	3
	CAL05	Not Used	6
	CAL06	Not Used	8
	CAL07	Not Used	2
	CAL08	Not Used	2
	CAL09	Not Used	3
	CAL10	Not Used	6
	CAL11	Not Used	8
	CAL12	Not Used	2
	CAL13	Not Used	2
	CAL14	673 - Quantity Qualifier	2
	CAL15	380 - Quantity	15
	CAL16	369 - Free Form Description	4

Record 09	Segment/Position	Data Element	Length
	BSD01	128 - Reference Number Qualifier	2
	BSD02	127 - Reference Number	15
	BSD03	352 - Description	15
	BSD04	1178 - Level	3
	BSD05	127 - Reference Number	15

Record 10	Segment/Position	Data Element	Length
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	REF01	RECORD RESERVED FOR FUTURE USE IN PA - CONVENTION GUIDE MARKS AS NOT USED	
	REF02		

Record 11	Segment/Position	Data Element	Length
	DTM01	RECORD RESERVED FOR FUTURE USE IN PA - CONVENTION GUIDE MARKS AS NOT USED	
	DTM02		

Record 12	Segment/Position	Data Element	Length
	AMT01	522 - Amount Qualifier Code	2
	AMT02	782 - Amount	15

Record 13	Segment/Position	Data Element	Length
	QTY01	673 - Quantity Qualifier	2
	QTY02	380 - Quantity	15

Record 14	Segment/Position	Data Element	Length
	PAM01	673 - Quantity Qualifier	2
	PAM02	380 - Quantity	15
	PAM03	355 - Unit or Basis for Measurement	2
	PAM04	522 - Amount Qualifier Code	2
	PAM05	782 - Monetary Amount	15
	PAM06	344 - Unit of Time Period	2
	PAM07	374 - Time/Time Qualifier	3
	PAM08	373 - Date	6

Record 15	Segment/Position	Data Element	Length
	MSG01	933 - Free-Form Message Text	25 or 264 - Refer to Convention Guide

Record 16	Segment/Position	Data Element	Length
	N101	98 - Entity Identifier Code	2
	N102	93 - Name	20

Record 17	Segment/Position	Data Element	Length
	N201	93 - Name	30

Record 18	Segment/Position	Data Element	Length
	N301	166 - Address Information	30
	N302	166 - Address Information	30

Record 19	Segment/Position	Data Element	Length
	N401	19 - City Name	30
	N402	156 - State or Province	2
	N403	116 - Postal Code	9
	N404	26 - Country Code	3

Record 20	Segment/Position	Data Element	Length
	PER01	366 - Contact Function Code	2
	PER02	93 - Name	35
	PER03	365 - Communication Number Qual.	2
	PER04	364 - Communications Number	8

Record 21	Segment/Position	Data Element	Length
	DTM01	374 - Date/Time Qualifier	3
	DTM02	373 - Date	6

E.2 Sample Record Layout

01~00~870715~F04695-86-C-0050~870601~FI-MOH2 FULL SCALE PROD-MOH2 FULL SCALE
PROD-03~90~80~80~HU
03~6~F7~FSD
03~52~F7~PRODUCTION
04~26~20796.2
04~27~0.0
04~28~22459.2
04~29~22459.2
04~30~26200.0
04~31~26200.0
04~32~1663.0
04~33~20796.2
04~34~0.0
04~36~20796.2
04~42~7278.6
04~43~6850.8
04~44~7349.8
04~45~0.0
04~46~0.0
04~49~20796.2
04~50~20761.0
04~52~20796.2
05~05~8.0
06~090~870601
06~091~870630
06~245~880530
06~276~860901
06~279~880315
06~277~860901
06~278~880315
07~F1~HU
09~74~1000~MOH-2~1
09~74~2000~PROJ MANAGEMENT~2~1000
09~74~2100~PROJ MANAGEMENT~3~2000
12~42~294.6
12~43~282.6
12~44~300.0
12~49~618.4
12~50~621.6
12~47~0.0
12~48~0.0
09~74~2200~SYS ENGINEERING~3~2000
12~42~234.6
12~43~241.0
12~44~267.4
12~49~283.4
12~50~283.4
12~47~0.0
12~48~0.0

09~74~2300~FUNC INTEGRA~3~2000

12~42~353.4

12~43~345.8

12~44~363.2

12~49~482.8

12~50~513.6

12~47~0.0

12~48~0.0

09~74~3000~PRIME EQUIP~2~1000

09~74~3100~SENSORS~3~3000

12~42~397.4

12~43~360.8

12~44~371.4

12~49~1728.4

12~50~1750.0

12~47~0.0

12~48~0.0

09~74~3200~COMMUNICATIONS~3~3000

12~42~910.6

12~43~707.4

12~44~838.2

12~49~2043.0

12~50~2130.0

12~47~0.0

12~48~0.0

09~74~3300~AUX EQUIP~3~3000

12~42~759.8

12~43~666.6

12~44~588.4

12~49~2418.2

12~50~2409.8

12~47~0.0

12~48~0.0

09~74~3400~ADPE~3~3000

12~42~261.2

12~43~251.0

12~44~238.4

12~49~599.2

12~50~594.6

12~47~0.0

12~48~0.0

09~74~3500~COMP PROGRAMS~3~3000

12~42~88.0

12~43~87.8

12~44~84.4

12~49~189.0

12~50~190.4

12~47~0.0

12~48~0.0

09~74~3600~PCC~3~3000

12~42~1692.8

12~43~1681.4

12~44~1977.6

12~49~5800.6

12-50-5987.8
12-47-0.0
12-48-0.0
09-74-3700-DATA DISPLAY-3-3000
12-42-272.6
12-43-159.6
12-44-159.6
12-49-388.0
12-50-388.0
12-47-0.0
12-48-0.0
09-74-3800-I & A-3-3000
12-42-426.8
12-43-509.8
12-44-534.0
12-49-1440.0
12-50-1464.8
12-47-0.0
12-48-0.0
09-74-4000-SPARES-2-1000
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12-43-135.0
12-44-142.8
12-49-755.6
12-50-761.8
12-47-0.0
12-48-0.0
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09-74-5100-ENG DATA-3-5000
12-42-19.0
12-43-12.4
12-44-17.0
12-49-32.2
12-50-32.2
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12-48-0.0
09-74-5200-MANAGEMENT DATA-3-5000
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12-43-79.8
12-44-93.0
12-49-94.8
12-50-110.8
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12-48-0.0
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09-74-6100-TEST FACILITIES-3-6000
12-42-101.6
12-43-101.0
12-44-99.0
12-49-101.0
12-50-101.0
12-47-0.0
12-48-0.0
09-74-6200-SYSTEM TEST-3-6000

12-42-393.8
12-43-405.8
12-44-411.4
12-49-667.2
12-50-669.2
12-47-0.0
12-48-0.0
09-74-6300-PCC TEST-3-6000
12-42-196.8
12-43-200.0
12-44-195.8
12-49-864.8
12-50-864.8
12-47-0.0
12-48-0.0
09-74-\$OH-OVERHEAD-2-1000
12-42-0.0
12-43-0.0
12-44-0.0
12-49-0.0
12-50-0.0
12-47-0.0
12-48-0.0
09-74-\$COM-COST OF MONEY-2-1000
12-42-0.0
12-43-0.0
12-44-0.0
12-49-0.0
12-50-0.0
12-47-0.0
12-48-0.0
09-74-\$G&A-GEN & ADMIN-2-1000
12-42-662.0
12-43-623.0
12-44-668.2
12-49-1850.4
12-50-1887.2
12-47-0.0
12-48-0.0
09-74-\$UB-UNDIST BUDGET-2-1000
12-42-0.0
12-43-0.0
12-44-0.0
12-49-0.0
12-50-0.0
12-47-0.0
12-48-0.0
09-74-\$MR-MGT RESERVE-2-1000
12-42-0.0
12-43-0.0
12-44-0.0
12-49-439.2
12-50-0.0
12-47-0.0

12-48-0.0
 07-F2-HU
 09-75-1000-MOH-2-1
 09-75-2000-PROJ MANAGEMENT-2-1000
 12-42-882.6
 12-43-869.4
 12-44-930.6
 12-49-1388.0
 12-50-1422.0
 12-47-0.0
 12-48-0.0
 09-75-3000-ENGINEERING-2-1000
 12-42-1240.8
 12-43-1252.6
 12-44-1269.2
 12-49-1911.8
 12-50-1977.8
 12-47-0.0
 12-48-0.0
 09-75-4000-MANUFACTURING-2-1000
 12-42-3816.0
 12-43-3467.6
 12-44-3736.0
 12-49-12161.0
 12-50-12437.8
 12-47-0.0
 12-48-0.0
 09-75-5000-QUALITY CONTROL-2-1000
 12-42-677.2
 12-43-638.2
 12-44-745.8
 12-49-3045.2
 12-50-3035.6
 12-47-0.0
 12-48-0.0
 07-F3-HU
 08-70-1-----10-1.0-JAN
 08-70-2-----10-1.0-FEB
 08-70-3-----10-1.0-MAR
 08-70-4-----10-0.0
 08-70-AT COMPLETE-----10-0
 09-74-BOP
 12-42-5633.2
 12-37-1645.4
 12-MB-100.0
 14----37-1915.1-MO-174-870701
 14----37-1915.2-MO-174-870801
 14----37-2015.6-MO-174-870901
 14----37-1914.2-MO-174-871001
 14----37-1793.6-MO-174-871101
 14----37-1457.7-MO-174-871201
 14----37-1321.8-MO-194-880101
 14----37-784.0-MO-194-880201
 14----37-300.4-MO-194-880301

14----37-0.0-MO-194-880301
 14----49-0.0-MO-194-880301
 09-74-BC
 12-37-645.2
 15-Apply MR
 09-74-EOP
 12-42-7278.6
 12-MB-0.0
 14----37-2081.4-MO-174-880401
 14----37-2081.2-MO-174-880501
 14----37-2132.4-MO-174-880601
 14----37-2025.4-MO-174-880701
 14----37-1817.6-MO-174-880801
 14----37-1542.2-MO-174-880901
 14----37-1398.2-MO-194-881001
 14----37-439.2-MO-194-881101
 14----37-0.0-MO-194-881201
 14----37-0.0-MO-194-881201
 14----49-0.0-MO-194-881201
 07-LP-HU
 08-70-1-----10-1.0-JAN
 08-70-2-----10-1.0-FEB
 08-70-3-----10-1.0-MAR
 08-70-4-----10-0.0
 08-70-AT COMPLETE-----10-0
 09-75-1000-MOH-2-1
 09-75-2000-PROJ MANAGEMENT-2-1000
 13-AW-0.0
 13-AV-0.0
 14-BC-0.0-WM-----174-870701
 14-BC-0.0-WM-----174-870801
 14-BC-0.0-WM-----174-870901
 14-BC-0.0-WM-----174-871001
 14-BC-0.0-WM-----174-871101
 14-BC-0.0-WM-----174-871201
 14-BC-0.0-WM-----194-880101
 14-BC-0.0-WM-----194-880201
 14-BC-0.0-WM-----194-880301
 14-BC-0.0-WM-----194-880301
 14-AZ-0.0-WM-----194-880301
 09-75-3000-ENGINEERING-2-1000
 13-AW-0.0
 13-AV-0.0
 14-BC-0.0-WM-----174-870701
 14-BC-0.0-WM-----174-870801
 14-BC-0.0-WM-----174-870901
 14-BC-0.0-WM-----174-871001
 14-BC-0.0-WM-----174-871101
 14-BC-0.0-WM-----174-871201
 14-BC-0.0-WM-----194-880101
 14-BC-0.0-WM-----194-880201
 14-BC-0.0-WM-----194-880301
 14-BC-0.0-WM-----194-880301
 14-AZ-0.0-WM-----194-880301

09-75-4000-MANUFACTURING-2-1000
 13-AW-0.0
 13-AV-0.0
 14-BC-0.0-WM-----174-870701
 14-BC-0.0-WM-----174-870801
 14-BC-0.0-WM-----174-870901
 14-BC-0.0-WM-----174-871001
 14-BC-0.0-WM-----174-871101
 14-BC-0.0-WM-----174-871201
 14-BC-0.0-WM-----194-880101
 14-BC-0.0-WM-----194-880201
 14-BC-0.0-WM-----194-880301
 14-BC-0.0-WM-----194-880301
 14-AZ-0.0-WM-----194-880301
 09-75-5000-QUALITY CONTROL-2-1000
 13-AW-0.0
 13-AV-0.0
 14-BC-0.0-WM-----174-870701
 14-BC-0.0-WM-----174-870801
 14-BC-0.0-WM-----174-870901
 14-BC-0.0-WM-----174-871001
 14-BC-0.0-WM-----174-871101
 14-BC-0.0-WM-----174-871201
 14-BC-0.0-WM-----194-880101
 14-BC-0.0-WM-----194-880201
 14-BC-0.0-WM-----194-880301
 14-BC-0.0-WM-----194-880301
 14-AZ-0.0-WM-----194-880301
 07-F4-HU
 08-70-1-----10-1.0-JAN
 08-70-2-----10-1.0-FEB
 08-70-3-----10-1.0-MAR
 08-70-4-----10-0.0
 08-70-AT COMPLETE-----10-0
 09-75-1000-MOH-2-1
 09-75-2000-PROJ MANAGEMENT-2-1000
 13-AT-2.4
 13-AU-34.8
 13-AV-2.0
 14-AY-2.4-WM-----174-870701
 14-AY-2.2-WM-----174-870801
 14-AY-2.4-WM-----174-870901
 14-AY-2.2-WM-----174-871001
 14-AY-2.0-WM-----174-871101
 14-AY-1.8-WM-----174-871201
 14-AY-1.6-WM-----194-880101
 14-AY-1.6-WM-----194-880201
 14-AY-1.8-WM-----194-880301
 14-AY-0.0-WM-----194-880301
 14-AZ-0.0-WM-----194-880301
 09-75-3000-ENGINEERING-2-1000
 13-AT-4.8
 13-AU-71.0
 13-AV-4.2

14~AY~2.8~WM-----174~870701
 14~AY~3.4~WM-----174~870801
 14~AY~7.2~WM-----174~870901
 14~AY~7.6~WM-----174~871001
 14~AY~5.6~WM-----174~871101
 14~AY~5.2~WM-----174~871201
 14~AY~4.4~WM-----194~880101
 14~AY~3.4~WM-----194~880201
 14~AY~0.0~WM-----194~880301
 14~AY~0.0~WM-----194~880301
 14~AZ~0.0~WM-----194~880301
 09~75~4000~MANUFACTURING~2~1000
 13~AT~52.2
 13~AU~177.8
 13~AV~49.8
 14~AY~50.2~WM-----174~870701
 14~AY~72.8~WM-----174~870801
 14~AY~72.8~WM-----174~870901
 14~AY~67.4~WM-----174~871001
 14~AY~63.4~WM-----174~871101
 14~AY~49.0~WM-----174~871201
 14~AY~32.6~WM-----194~880101
 14~AY~16.2~WM-----194~880201
 14~AY~0.0~WM-----194~880301
 14~AY~0.0~WM-----194~880301
 14~AZ~0.0~WM-----194~880301
 09~75~5000~QUALITY CONTROL~2~1000
 13~AT~18.2
 13~AU~53.4
 13~AV~17.4
 14~AY~17.8~WM-----174~870701
 14~AY~23.6~WM-----174~870801
 14~AY~26.0~WM-----174~870901
 14~AY~26.4~WM-----174~871001
 14~AY~25.4~WM-----174~871101
 14~AY~23.6~WM-----174~871201
 14~AY~16.6~WM-----194~880101
 14~AY~4.4~WM-----194~880201
 14~AY~0.0~WM-----194~880301
 14~AY~0.0~WM-----194~880301
 14~AZ~0.0~WM-----194~880301
 07~F5~HU
 09~74~1000~MOH-2~1
 15~Program narrative for the entire MOH-2 contract will be found here.
 15~All changes to Baseline and contract values should be explained in this area.
 15~A proactive contractor will also include in this area an overall outlook for the program, some insight into upcoming events, and any looming problems or issues that could have an impact on the analysis of the contract.
 16~13~MEGA HERZ ELEC & VEN
 18~BARABOU WISCONSIN
 20~AA~A. Hatchett
 20~IO~Deputy Comptroller
 20~ZZ~Comptroller
 21~275~870715

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APPENDIX F - TRACEBILITY GUIDE

INTRODUCTION

The purpose of this document is to provide traceability from Performance Analyzer Version 4.0 output to the source input screen. Each output report/graph is identified by a alphabetic letter code in the upper left hand corner. The alphabetic code increases in sequential order (from A through RR) to act as an aid in locating a report/graph.

Each output graph/report is immediately followed by an output-input cross referenced list. This list identifies an output item and its associated input field (or calculation) code. You can determine the page of the input screen by referring to the Input Screen Table of Contents. The output code comprises two components. The alphabetic portion of the input code identifies the location of the output screen in the Table of Contents. The numeric portion of the input code identifies the output field.

Each input screen is identified by a numeric code that is in the upper left hand corner of the input screen. The numeric code increases in sequential order (from 1 through 37) to act as an aid in locating an input screen. Note that there may be more than one input screen on a page.

To use this appendix first identify the output graph/report of the item that you want to trace (refer to the Graphs and Reports Table of Contents starting on page A-1). Locate the item (and its code) in question on the output graph/report. Refer to the cross reference list that directly follows the output report/graph in order to obtain the input numeric code. You can determine the page of the input screen by referring to the Input Screen Table of Contents. The numeric portion of the input code identifies the location of the input screen in the Table of Contents. The alphabetic portion of the input code identifies the input field.

Provided below is an example on how to trace an output value to its input source.

SAMPLE TRACEABILITY:

Example: User needs to trace the Cost/Schedule (PMR) BCWP output to the input screen.

Look up Cost/Schedule in the Table of Contents - Graphs and Reports. Cost/Schedule output is on page F-4. The graph is identified by the letter A. BCWP values are identified by the number 9. Thus the output identification is A9.

Turn to page F-5 and then refer to item A9. Item A9 is cross referenced to Input Field 12B (input screen 12, item B) Total Contract.

Look up input screen 12 in the Table of Contents - Input Screens. Screen 12 is on page F-x.

The BCWP input and contract total is identified by the letter B which is in the total BCWP column. Formulas referenced are found in the PA User's Manual in Appendix A.

Traceability Guide - Table of Contents

The Performance Analyzer Version 4.0

Graphs and Reports

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PMR CHARTS

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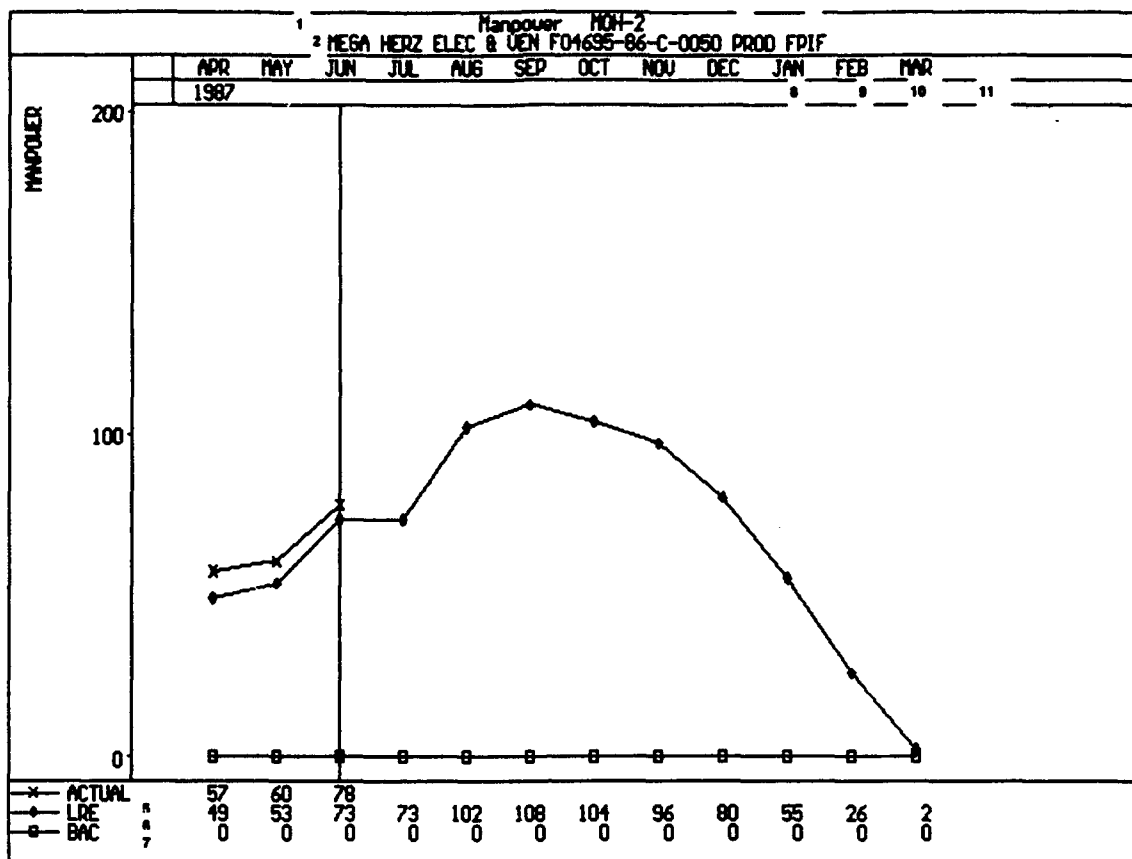
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A. PMR Cost/Schedule

<u>Graph</u>	<u>Input Field</u>
A1	3A
A2	1A
A3	4B
A4	5J
A5	10S
A6	Calculated A9 - A10
A7	Calculated A9 - A8
A8	12A Total Contract
A9	12B Total Contract
A10	12C Total Contract
A11	Calculated A9 - A10
A12	Calculated A9 - A8
A13	12F Total Contract
A14	12F Total Contract
A15	12G Total Contract
A16	12F Total Contract
A17	12F Total Contract
A18	21A+21T+21U+21V+21W+21X
A19	Calculated A14-A15
A20	Calculated A17-A18
A21	Calculated A20/A17
A22	Calculated A19/A14
A23	22A
A24	Calculated 12F Total Contract - 12F Management Reserve (MR)
A25*	Calculated (A-10 formula 6)
A26	12F MR
A27	12G MR
A28	21T+21U+21V+21W+21X
A29	21C
A30	21B
A31	21D
A32	2A
A33	7E
A34	7C
A35	7H
A36	7F
A37	7H
A38	7F
A39	4A

*Note that calculation(s) can be at the total contract level or PMB depending on the user's selection in the recalculation module.



B. Manpower

<u>Graph</u>	<u>Input Field</u>
B1	1A
B2	3A
B3	4J
B4	4B
B5	16A for Appropriate Month
B6	16M (Current & Prior Months) 16C - 16M (Future Periods)
B7	17M (Current & Prior Months) 17B - 17L (Future Periods)
B8	11F
B9	11G
B10	11H
B11	11I
B12	4A

C

¹ MEGA HERZ ELEC & UEN MOH-2 F04695-86-C-0050 ⁵⁵

VARIANCE AT COMPLETION

AS OF: JUN 87 ³

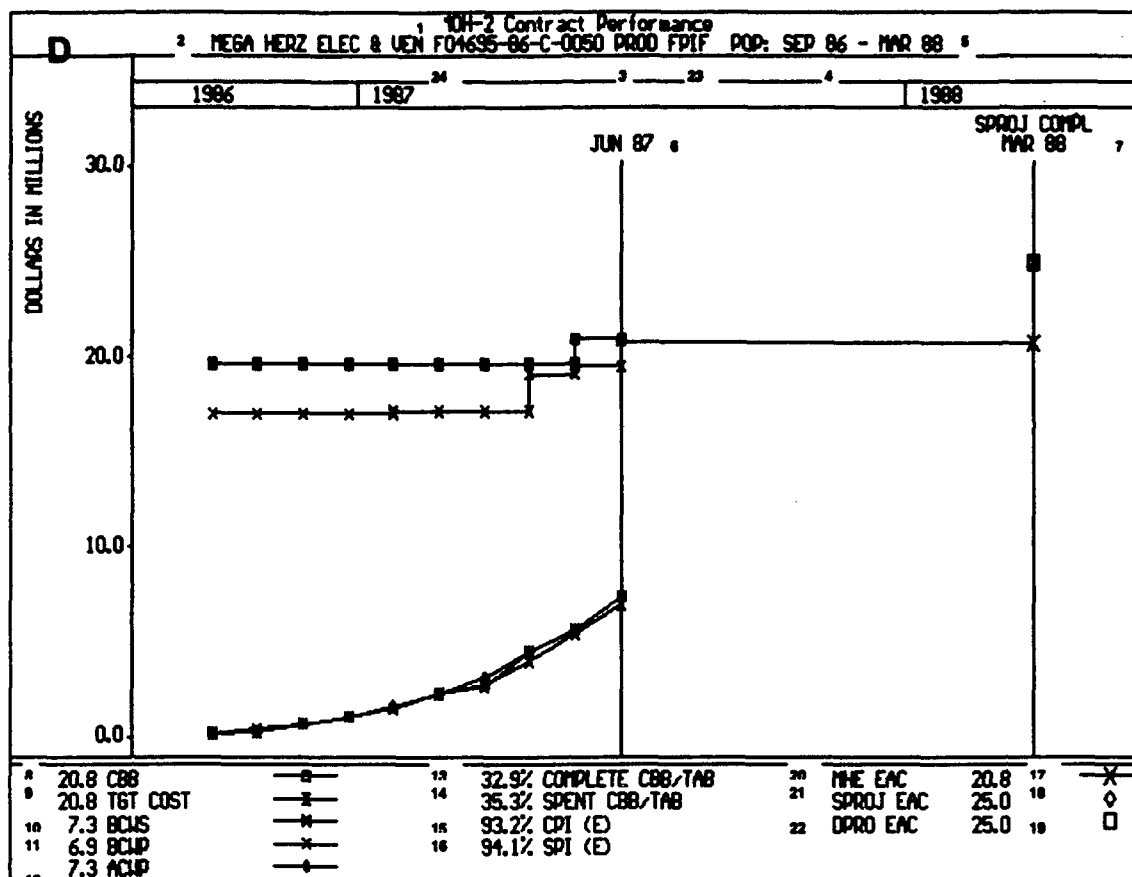
	⁵³ MHE	⁵⁴ SPROJ	⁵⁵ S/L	⁵⁶ DPRO
SUBTOTAL COST VARIANCE				
CUM TO DATE	-0.499 ⁴	-0.499 ⁵	-0.499 ⁶	-0.499 ⁷
TO COMPLETION	0.095 ⁸	-2.144 ⁹	-0.984 ¹⁰	-1.144 ¹¹
AT COMPLETION	-0.404 ¹²	-2.643 ¹³	-1.483 ¹⁴	-1.643 ¹⁵
MR AVAILABLE	0.439 ¹⁶	0.439 ¹⁷	0.439 ¹⁸	0.439 ¹⁹
POTENTIAL USAGES				
⁴⁸ Stuff	²⁰	1.000 ²⁵	³⁰	3.000 ³⁵
⁴⁹	²¹	1.000 ²⁶	³¹	³⁶
⁵⁰	²²	²⁷	³²	³⁷
⁵¹	²³	²⁸	³³	³⁸
⁵²	²⁴	²⁹	³⁴	³⁹
REMAINING AT COMPLETION	0.439 ⁴⁰	-1.561 ⁴¹	0.439 ⁴²	-2.561 ⁴³
TOTAL UAC	0.035 ⁴⁴	-4.204 ⁴⁵	-1.044 ⁴⁶	-4.204 ⁴⁷

C. VAC Worksheet

<u>Graph</u>	<u>Input Field</u>
C1	3A
C2	1A
C3	2A
C4	Calculated 12B TC - 12C TC
C5	Calculated 12B TC - 12C TC
C6	Calculated 12B TC - 12C TC
C7	Calculated 12B TC - 12C TC
C8	C12 - C4
C9	C13 - C5
C10	C14 - C6
C11	C15 - C7
C12	12F TC - 21A
C13	12F TC - 12F Management Reserve - 12G TC - 12G Management Reserve
C14	Calculated 12F TC - (12F TC/(12B TC/12C TC))
C15	Calculated 12F TC - 21F
C16	12F Management Reserve
C17	12F Management Reserve
C18	12F Management Reserve
C19	12F Management Reserve
C20	21O
C21	21P
C22	21Q
C23	21R
C24	21S
C25	21T
C26	21U
C27	21V
C28	21W
C29	21X
C30	No Input
C31	No Input
C32	No Input
C33	No Input
C34	No Input
C35	21Y
C36	21Z
C37	21AA
C38	21BB
C39	21CC
C40	12G Management Reserve
C41	Calculated 12F MR - (21T through 21X)

C. VAC Worksheet (Continued)

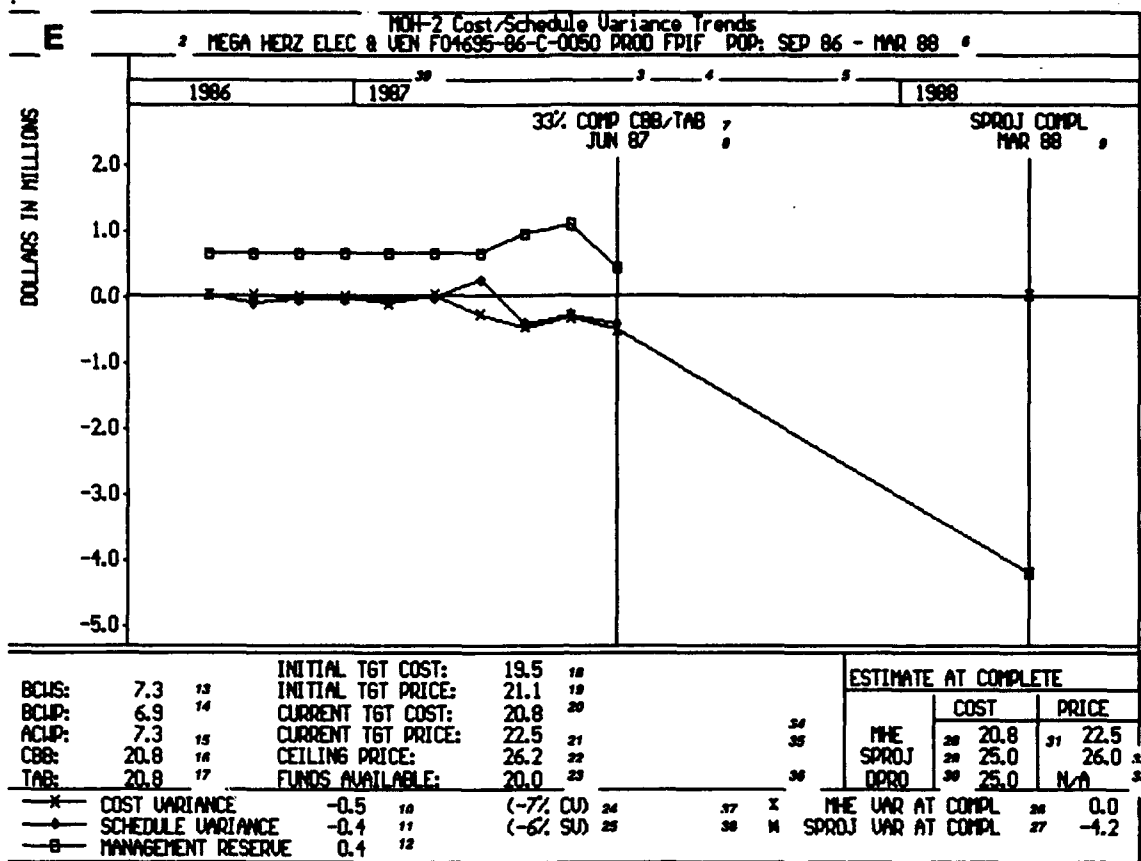
<u>Graph</u>	<u>Input Field</u>
C42	12F MR
C43	Calculated 12F MR - (21Y through 21 CC)
C44	$C40 + C12$
C45	$C41 + C13$
C46	$C42 + C14$
C47	$C43 + C15$
C48	21J
C49	21K
C50	21L
C51	21M
C52	21N
C53	7H
C54	7F
C55	7G
C56	4A



D. Army Performance

<u>Graph</u>	<u>Input Field</u>
D1	1A
D2	3A
D3	4J
D4	5J
D5	10S
D6	2A
D7	10S
D8	10I
D9	10A
D10	12A Total Contract (TC)
D11	12B TC
D12	12C TC
D13*	Calculated $12B\ TC / (12F\ TC - 12F\ MR)$ or Calculated $12B\ TC / 12F\ TC$
D14*	Calculated $12C\ TC / (12F\ TC - 12F\ MR)$ or Calculated $12C\ TC / 12F\ TC$
D15	Calculated $D12 / D11$
D16	Calculated $D12 / D10$
D17	12G TC
D18	$21A + 21T + 21U + 21V + 21W + 21X$
D19	$21F + 21Y + 21Z + 21AA + 21BB + 21CC$
D20	7H
D21	7F
D22	7G
D23	4B
D24	4A

*Note that calculation(s) can be at the total contract level or PMB depending on the user's selection in the recalculation module.

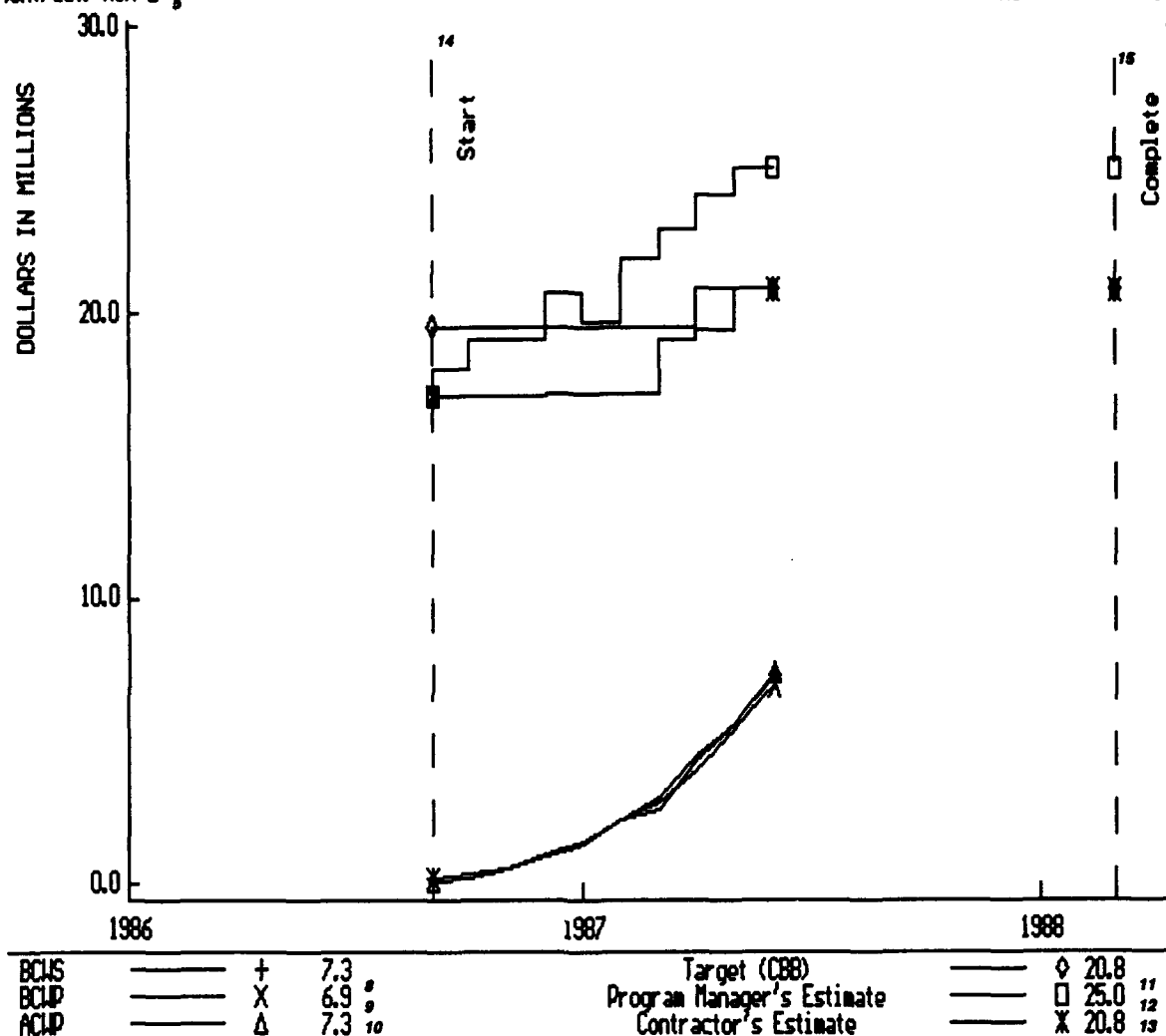


E. Army Cost/Schedule

<u>Graph</u>	<u>Input Field</u>
E1	1A
E2	3A
E3	4J
E4	4B
E5	5J
E6	10S
E7*	Calculated 12B Total Contract (TC)/12F TC - 12F MR or 12B TC/12F TC
E8	2A
E9	10S
E10	Calculated E14 - E15
E11	Calculated E14 - E13
E12	12F TC Management Reserve Element
E13	12A TC
E14	12B TC
E15	12C TC
E16	10I
E17	10J
E18	4F
E19	4G
E20	10A
E21	10D
E22	10F
E23	21D
E24	Calculated (A5, Formula 5)
E25	Calculated (A5, Formula 2)
E26	Calculated (12F TC - 12G TC)
E27	Calculated 12F TC - 12G TC
E28	12G TC
E29	21A + 21T + 21U + 21V + 21W + 21K
E30	21F + 21Y + 21Z + 21AA + 21BB + 12CC
E31	10E
E32	21B
E33	21G
E34	7H
E35	7F
E36	7G
E37	7H
E38	7F
E39	4A

F
Contractor: MEGA HERZ ELEC & UEN
Contract: MOH-2
Contract Performance
FO4695-86-C-0050 P200 FPIE

Program: MOH2 P200
AS OF: 30 JUN 87



F. Contract Performance

<u>Graph</u>	<u>Input Field</u>
F1	4A
F2	4J
F3	4B
F4	3A
F5	1A
F6	7C
F7	10Q
F8	12A
F9	12B
F10	12C
F11	10I
F12	21A + (21T through 21Y)
F13	12G Total Contract
F14	5J
F15	21E

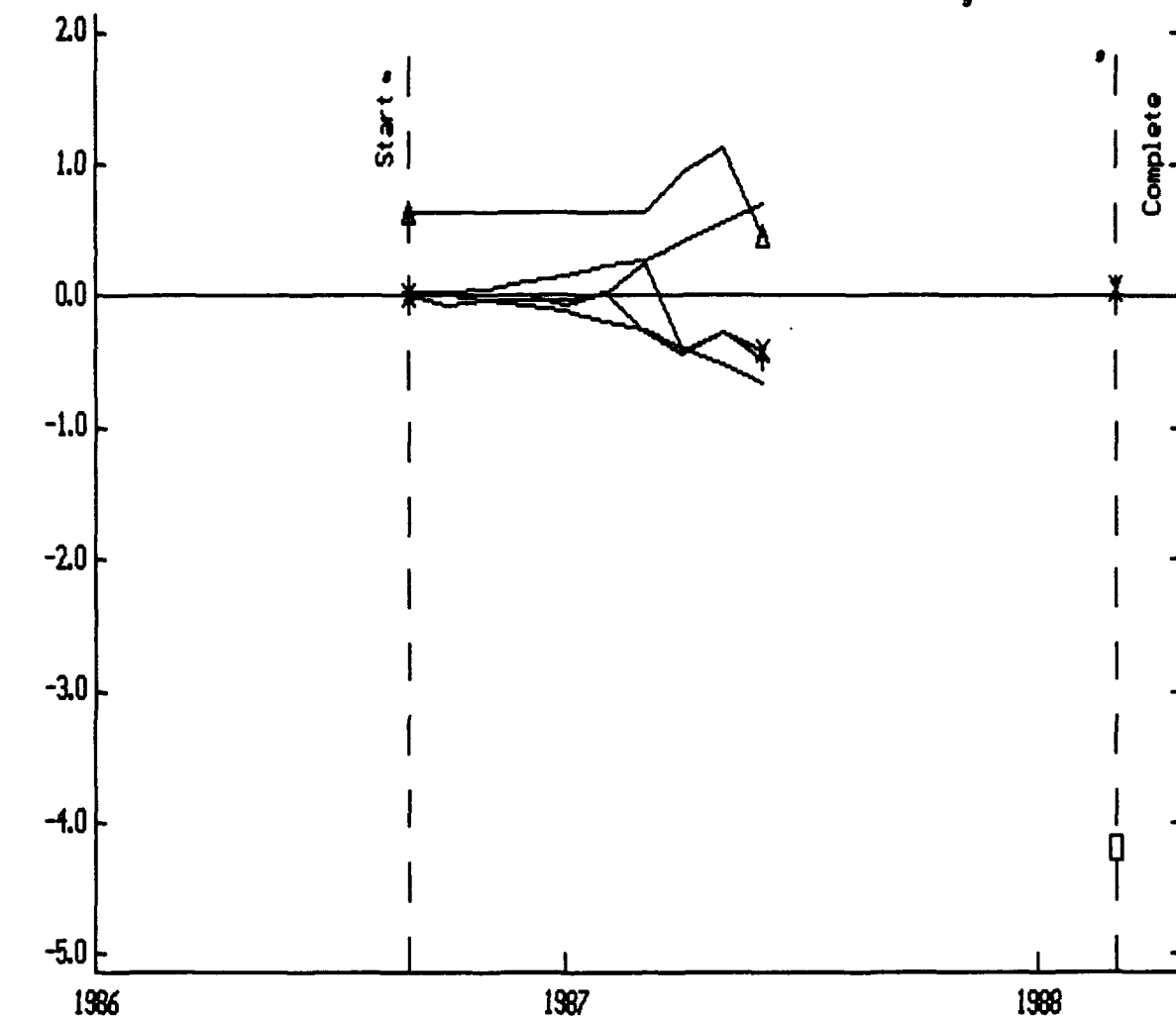
G

Factor: MEGA HERZ ELEC & UEN
 Fact: MCH-2 7

Cost/Schedule Variance Trends
 F04695-86-C-0050 PROO FP1F

1 2 3

Program: MCH2 PROO
 AS OF: 30 JUN 87



Cost Variance	10	— + —	-0.5		Cost Var Est @ Completion	
Schedule Variance	11	— X —	-0.4	10% Thresholds	SPROJ, □	-4.2
Management Reserve	12	— Δ —	0.4	Start/Comp Dates	MHE 16 X	0.0

G. C/S Variance Trends






<u>Graph</u>	<u>Input Field</u>
G1	4A
G2	4J
G3	4B
G4	7C
G5	10Q
G6	3A
G7	1A
G8	5J
G9	21E
G10	12B Total Contract (TC) - 12C TC
G11	12B TC - 12A TC
G12	12F Management Reserve
G13	7F
G14	7H
G15	12F TC - 21A + (21T through 21X)
G16	12F TC - 12 G TC

H

Mega Missile ¹

COST PERFORMANCE OVERVIEW

CPR DATE: JUN 87 ²
(DOLLARS MILLIONS - THEN YEAR)

PURPOSE/ CONTRACTOR	CONTRACT INFORMATION				CONTRACTOR COST VARIANCE					
	TYPE	QTY	TGT COST	% COMP	TO DATE			VAR AT COMPL		
					\$	%	EVAL	SPROJ	MHE	EVAL
MOH-2 ³ PROD FY86/88 ⁶ 86-C-0050 ⁷ ⁸	⁹ FPIF	¹⁰ 58	¹¹ 20.8	¹² 34	¹³ -0.5	¹⁴ -7	¹⁵ 	¹⁶ -4.2	¹⁷ 0.0	¹⁸ 
<div>  SATISFACTORY  MARGINAL  UNSATISFACTORY </div>										

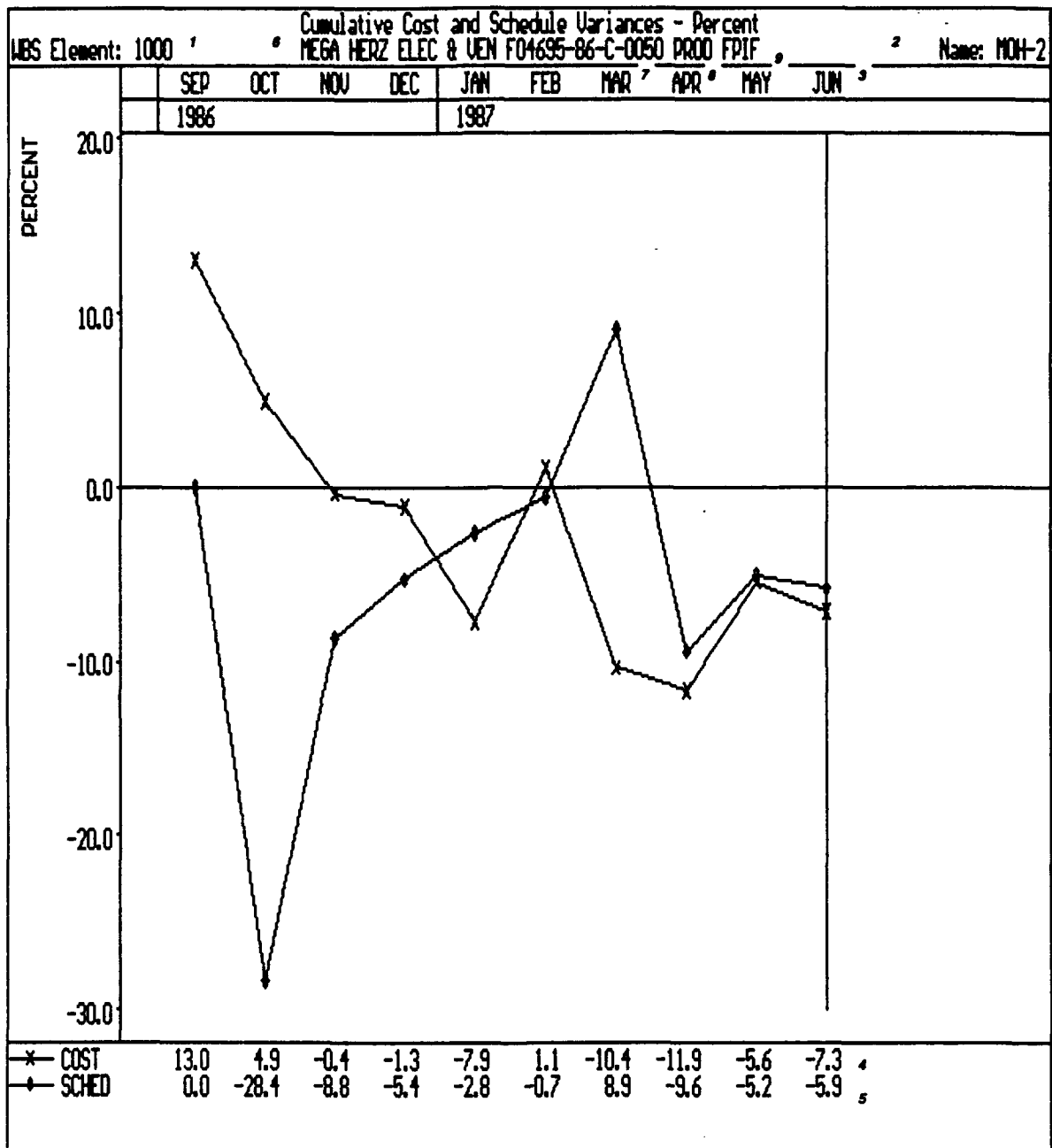
H. PMR Summary

<u>Graph</u>	<u>Input Field</u>
H1	35A
H2	36A
H3	1A
H4	4J
H5	51 (FY Only)
H6	10S (FY Only)
H7	3B
H8	Last 8 Digits of 4A
H9	4B
H10	4C + 4D
H11	10A
H12*	Calculated (A7, Formula 6)
H13	Calculated (A5, Formula 4)
H14	Calculated (A5, Formula 5)
H15	Calculated (E14 vs *PMR Parameters)
H16	12F TC - (21A + 21T through 21X)
H17	12F TC - (21A + 21T through 21X)
H18	Calculated (E17 vs *PMR Parameters)

*PMR Parameters

$X > -5$	Green
$-5 \leq X < -10$	Yellow
$X \geq -10$	Red

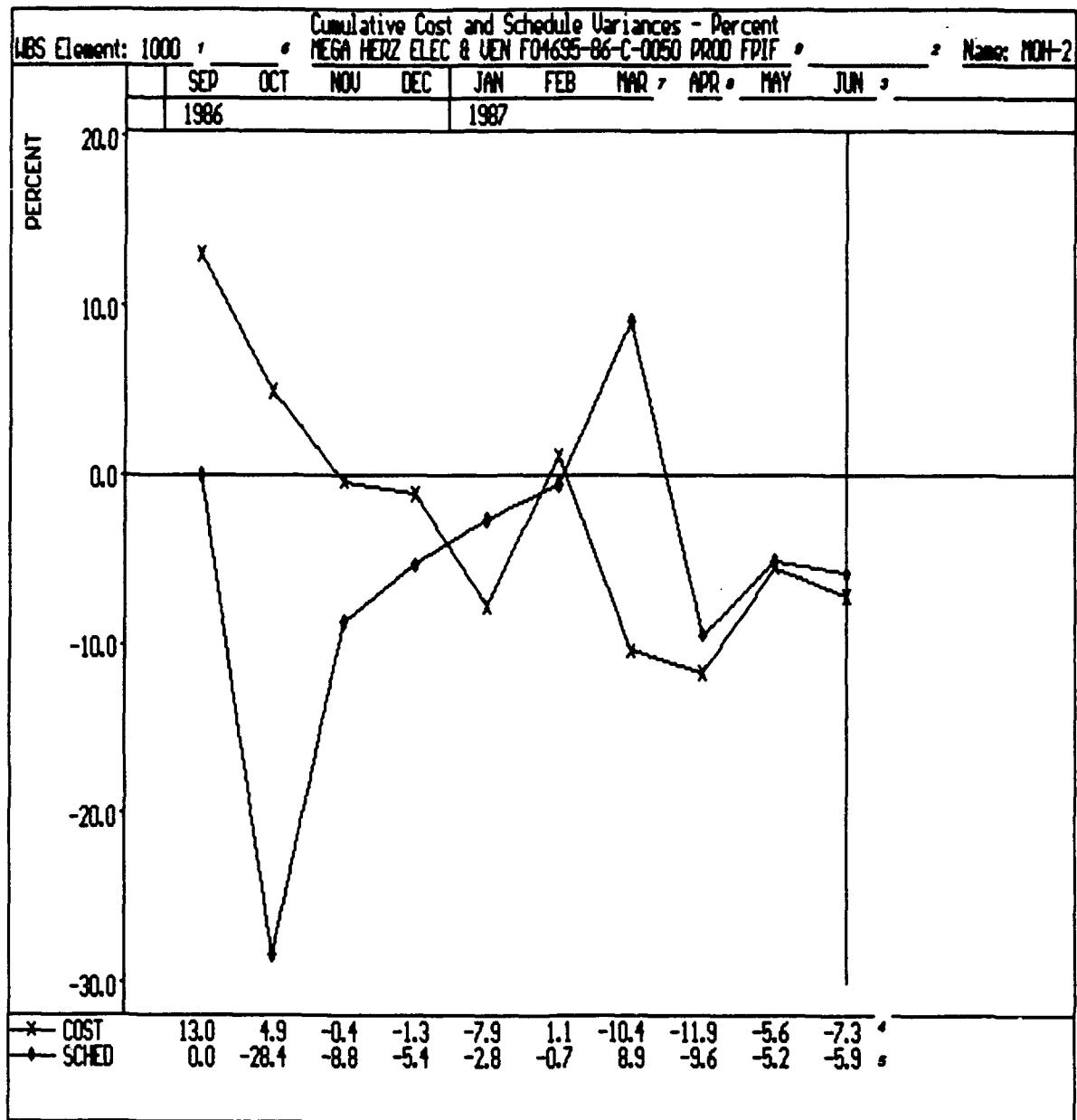
*Note that calculation(s) can be at the total contract level or PMB depending on the user's selection in the recalculation module



I. Cumulative Cost and Schedule - Dollars

<u>Graph</u>	<u>Input Field</u>
I1	8A
I2	8B
I3	2A
I4	Calculated 12B - 12C
I5	Calculated 12B - 12A
I6	3A
I7	4A
I8	4C-D
I9	4B

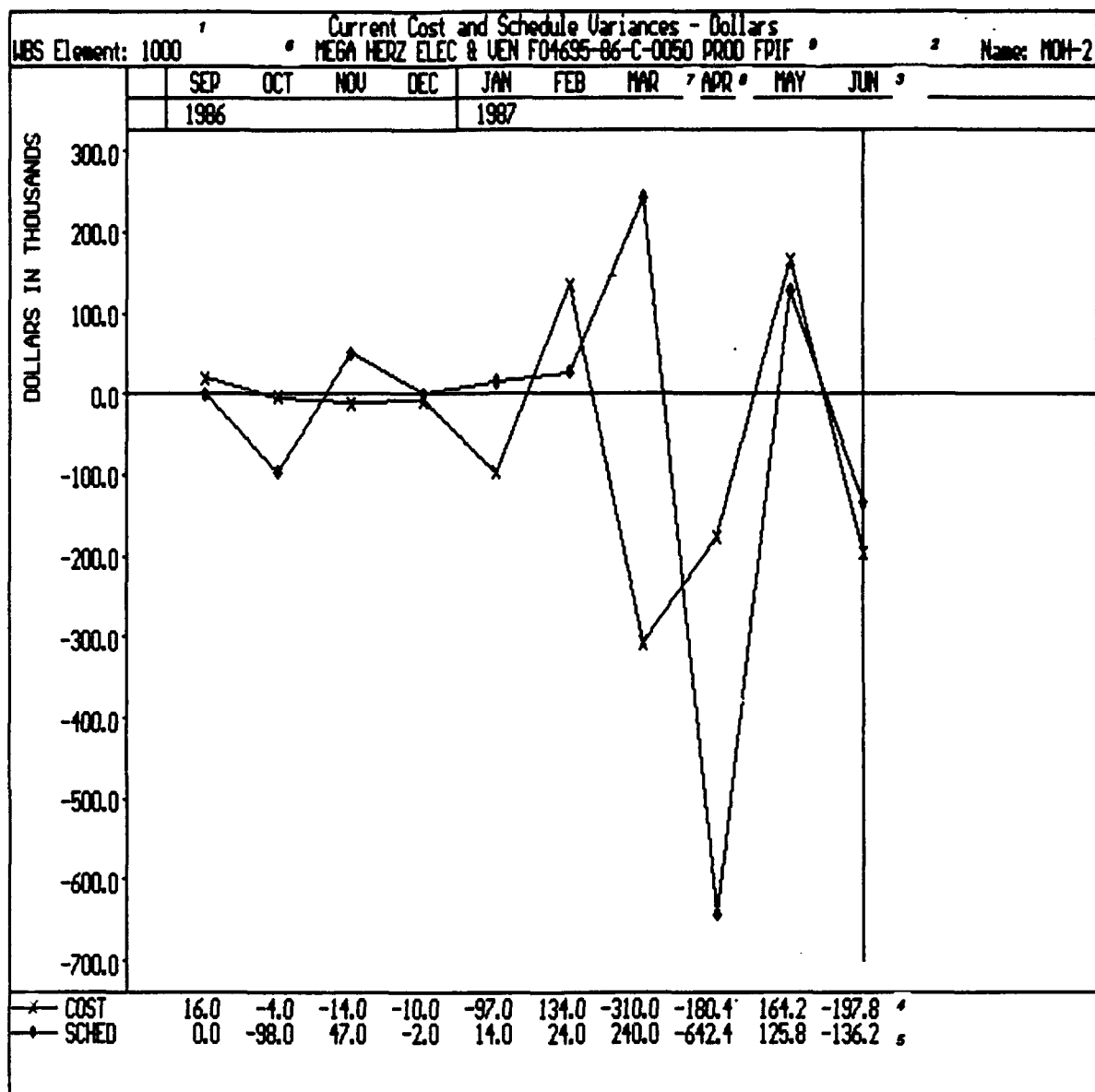
J



J. Cumulative Cost and Schedule - Percent

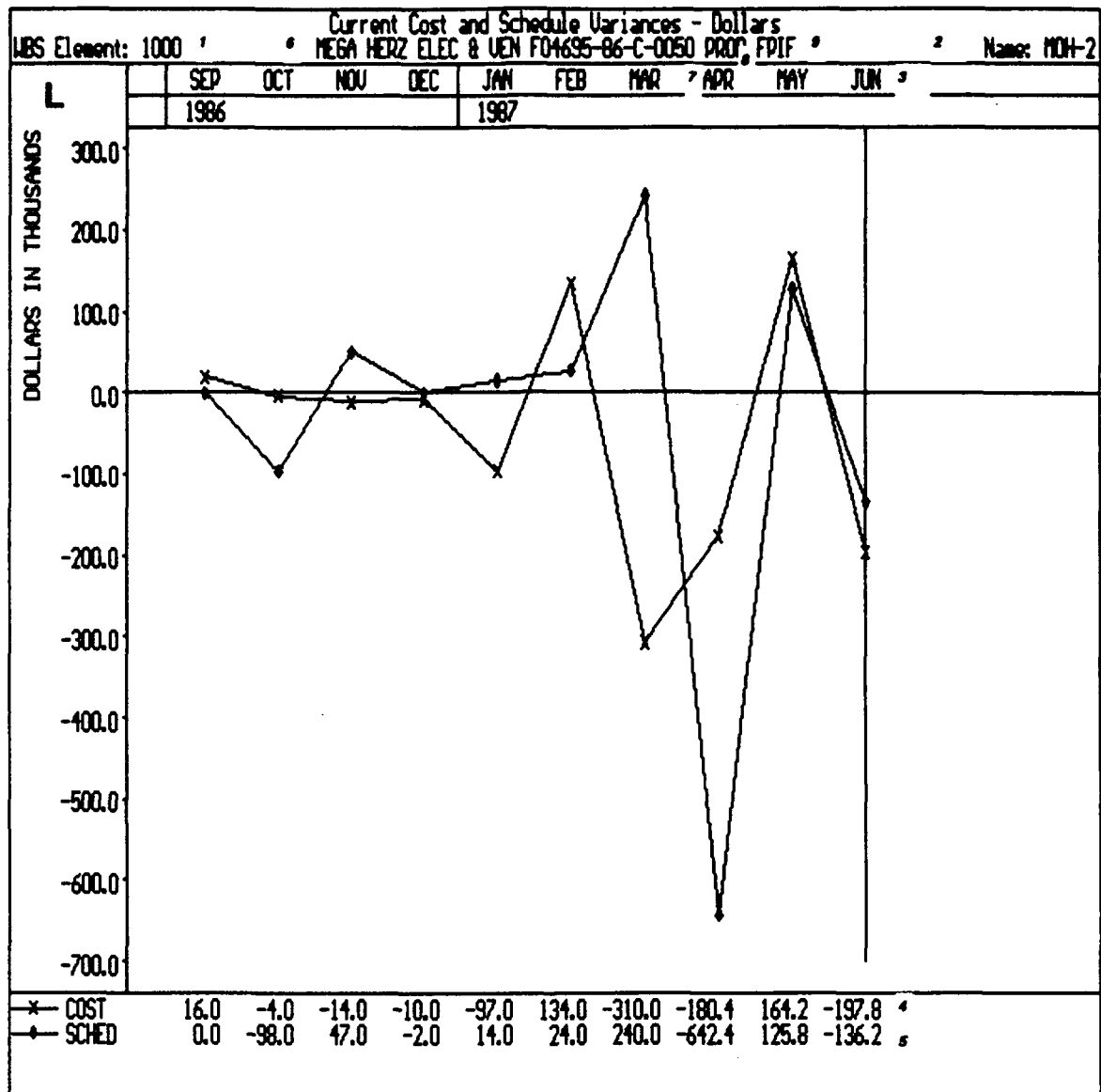
<u>Graph</u>	<u>Input Field</u>
J1	8A
J2	8B
J3	2A
J4	Calculated (A5, Formula 5)
J5	Calculated (A5, Formula 2)
J6	3A
J7	4A
J8	4C-D
J9	4B

K



K. Current Cost and Schedule Variances - Dollars

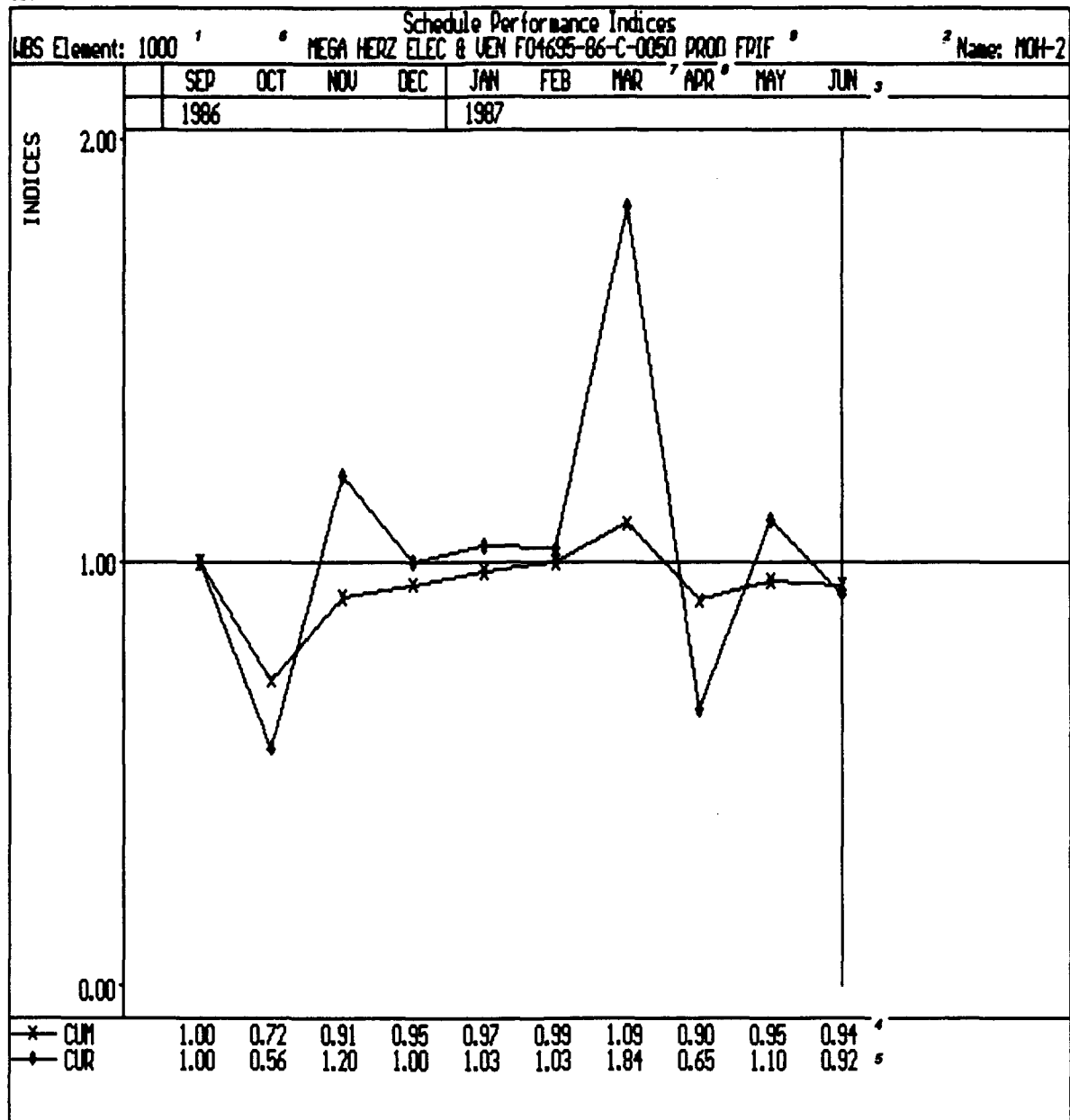
<u>Graph</u>	<u>Input Field</u>
K1	8A
K2	8B
K3	2A
K4	Calculated (A5, Formula 4)
K5	Calculated (A5, Formula 1)
K6	3A
K7	4A
K8	4C-D
K9	4B



L. Current Cost and Schedule Variances - Percent

<u>Graph</u>	<u>Input Field</u>
L1	8A
L2	8B
L3	2A
L4	Calculated (A5, Formula 5 Current)
L5	Calculated (A5, Formula 2 Current)
L6	3A
L7	4A
L8	4C-D
L9	4B

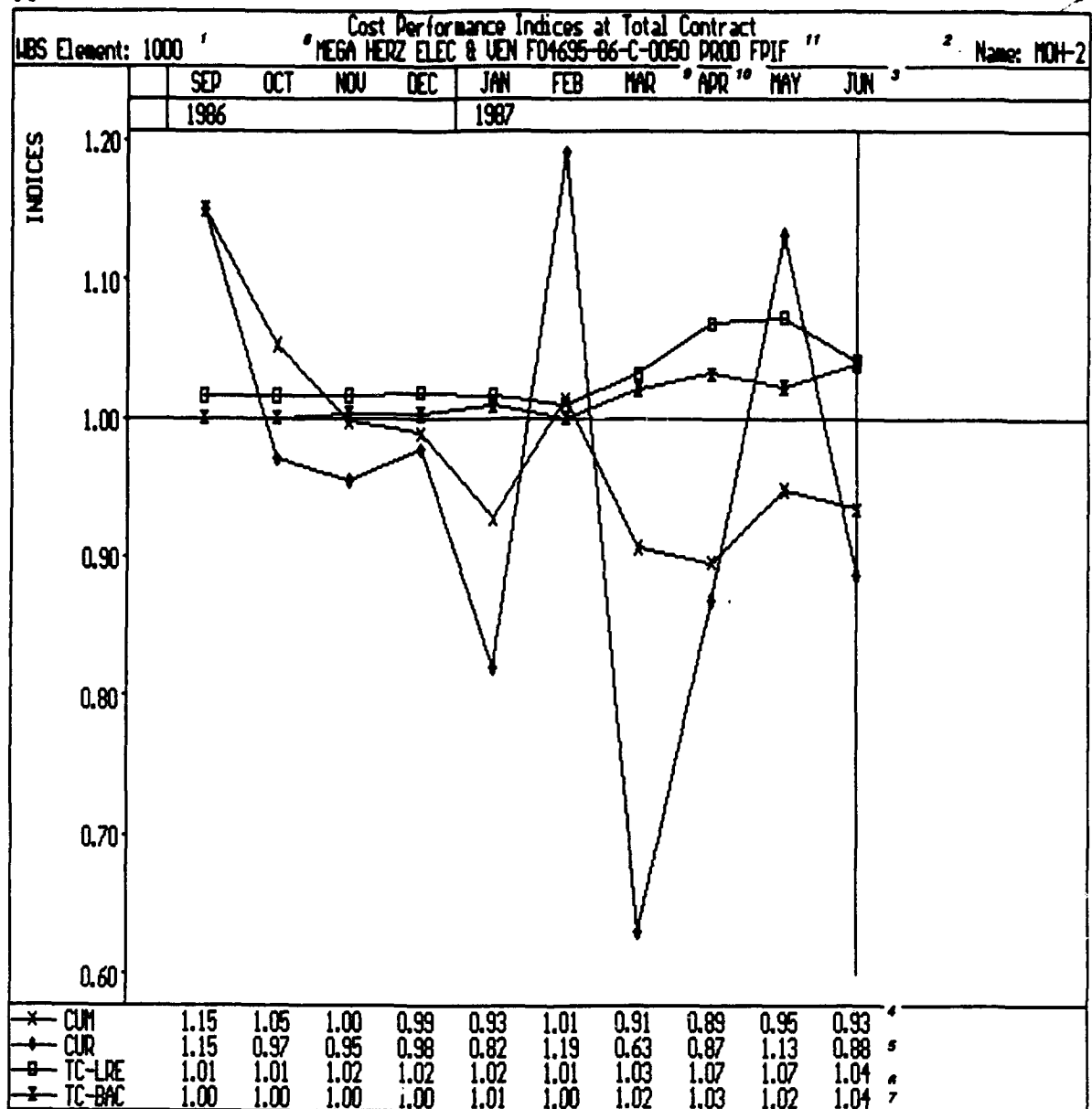
M



M. Schedule Performance Indices

<u>Graph</u>	<u>Input Field</u>
M1	8A
M2	8B
M3	2A
M4	Calculated (A5, Formula 3 Cumulative)
M5	Calculated (A5, Formula 3 Current)
M6	3A
M7	4A
M8	4C-D
M9	4B

N

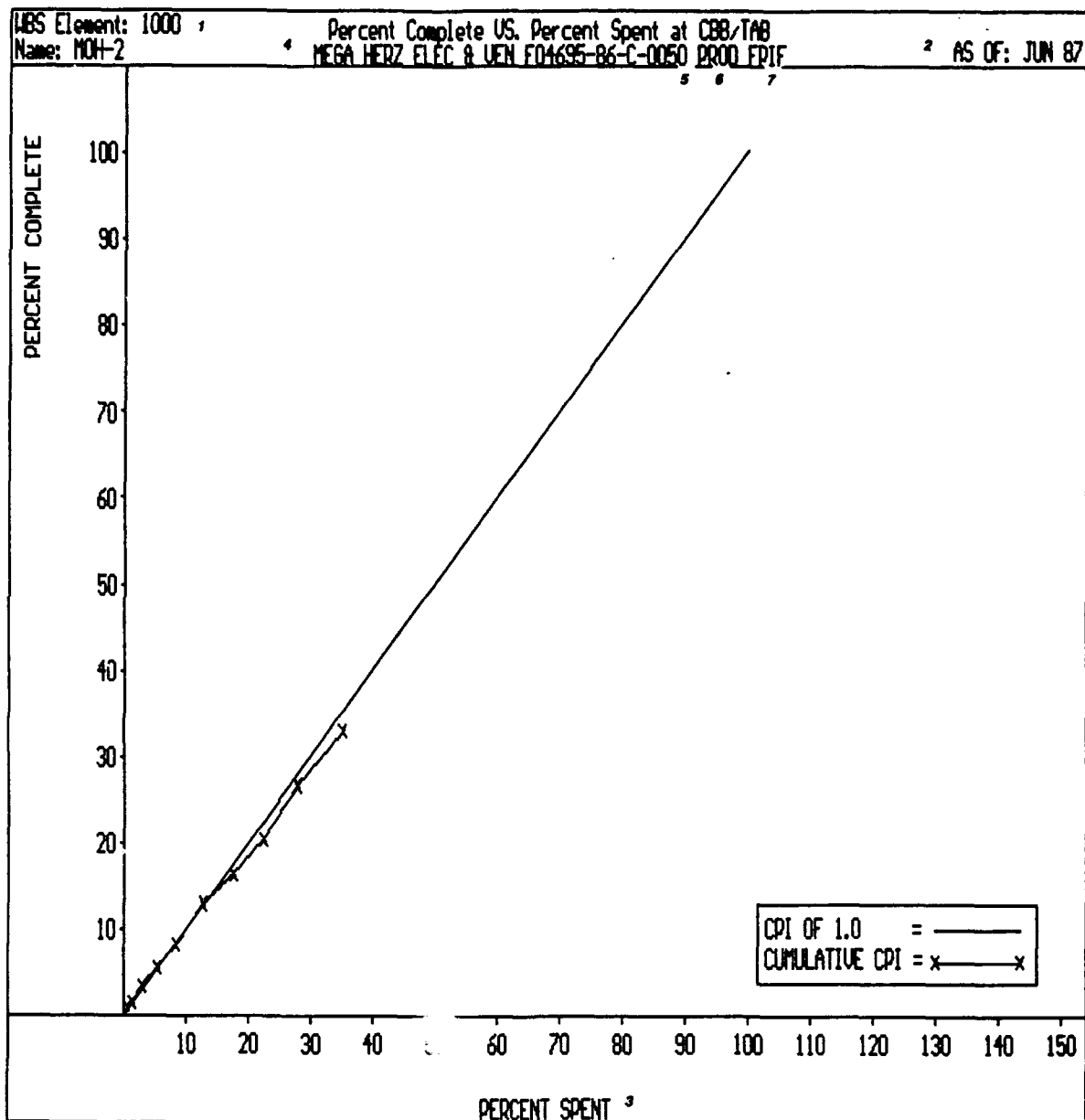


N. Cost Performance Indices

<u>Graph</u>	<u>Input Field</u>
N1	8A
N2	8B
N3	2A
N4	Calculated (A5, Formula 6 Cumulative)
N5	Calculated (A5, Formula 6 Current)
N6*	Calculated (A6, Formula 2)
N7*	Calculated (A6, Formula 1)
N8	3A
N9	4A
N10	4C-D
N11	4B

*Note that calculation(s) can be at the total contract level or PMB depending on the user's selection in the recalculation module

O

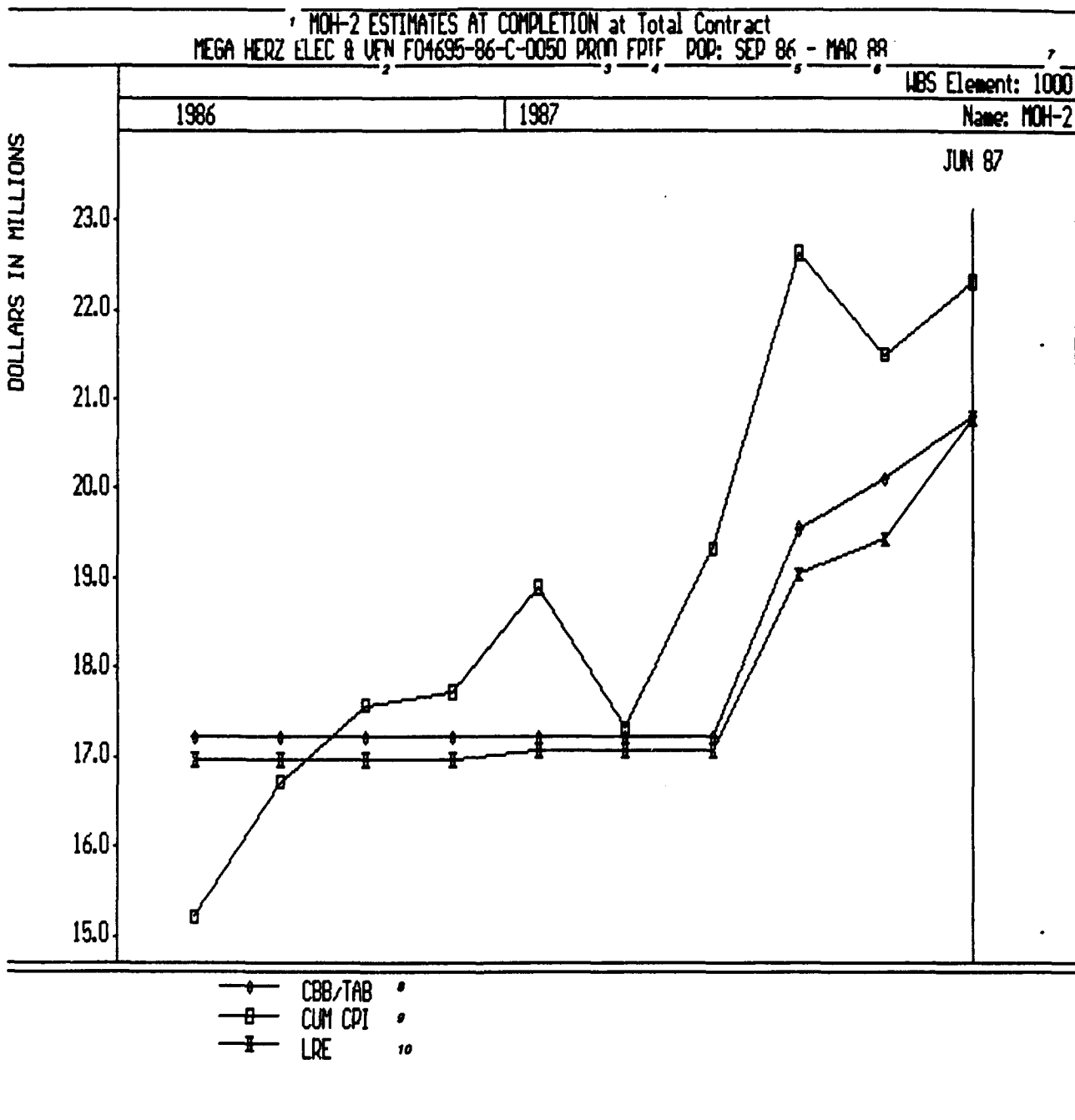


O. Percent Complete

<u>Graph</u>	<u>Input Field</u>
O1	8A
O2	2A
O3*	Calculated (A7, Formula 7)
O4	3A
O5	4A
O6	4C-D
O7	4B

*Note that calculation(s) can be at the total contract level or PMB depending on the user's selection in the recalculation module

P

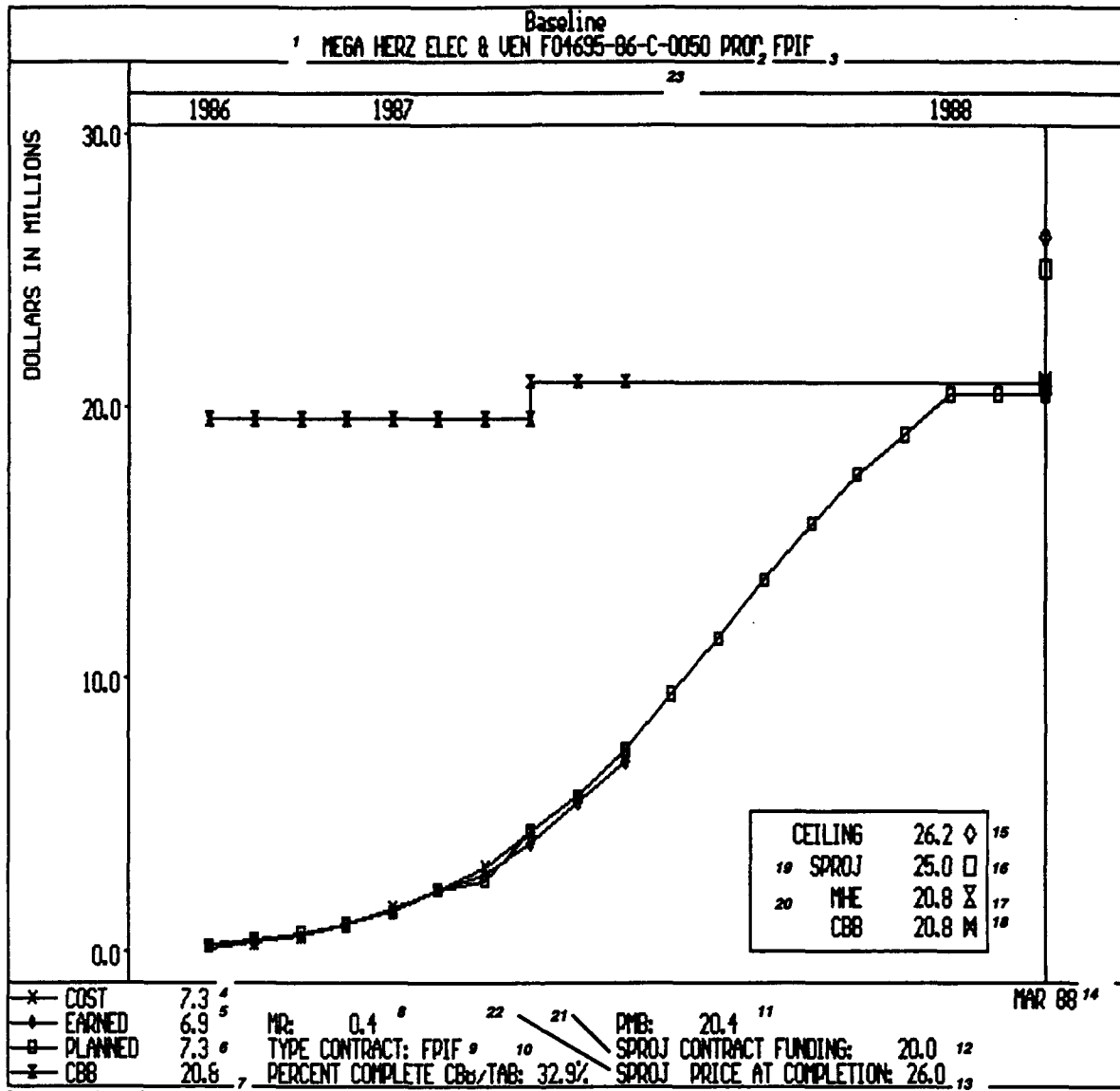


P. Estimate at Completion

<u>Graph</u>	<u>Input Field</u>
P1	1A
P2	3A
P3	4J
P4	4B
P5	5J
P6	10S
P7	8A
P8*	12F or Selected EAC
P9*	Selected EAC
P10*	12G or Selected EAC

*Note that calculation(s) can be at the total contract level or PMB depending on the user's selection in the recalculation module

Q

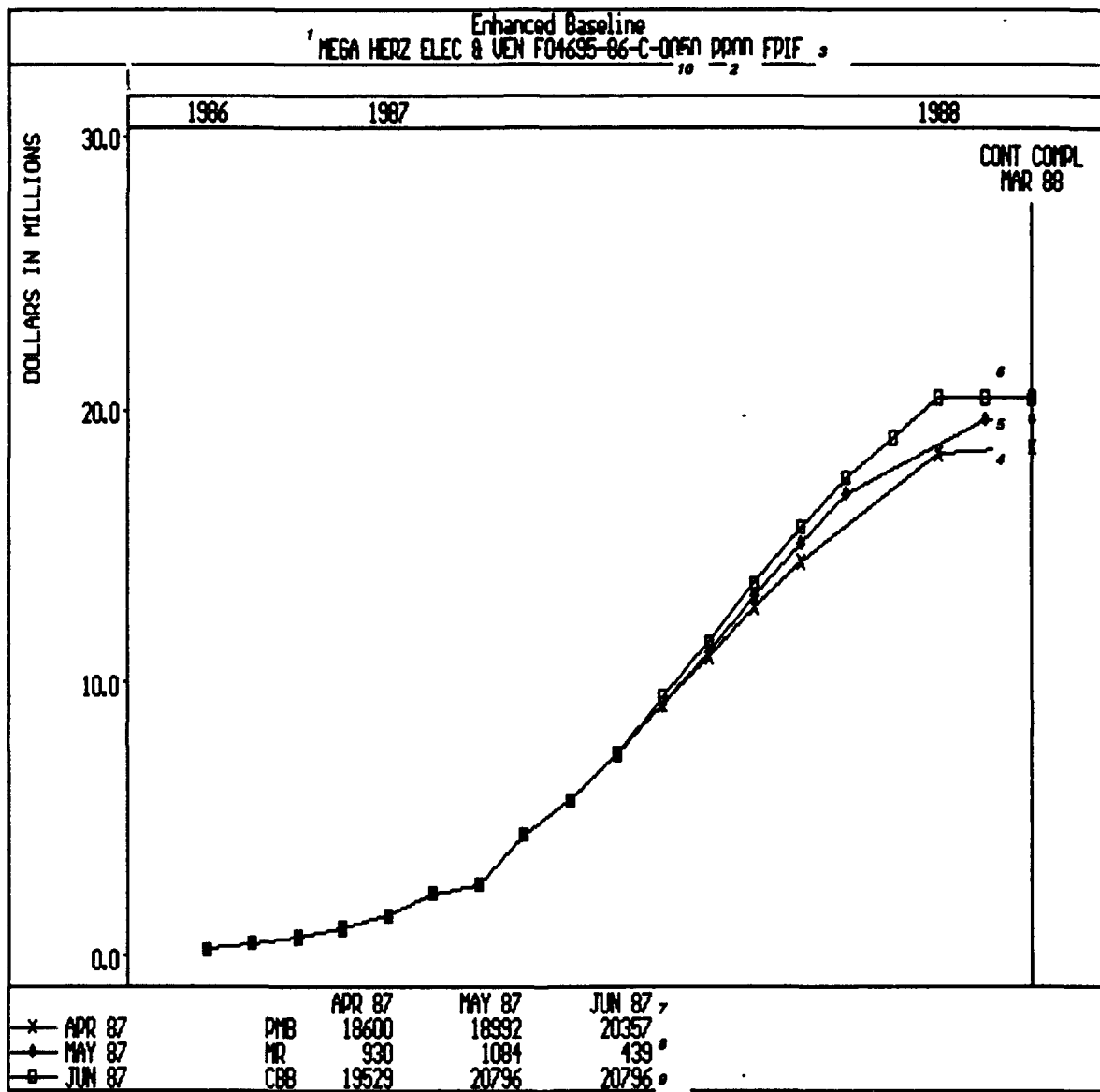


Q. Baseline

<u>Graph</u>	<u>Input Field</u>
Q1	3A
Q2	4J
Q3	4B
Q4	12C
Q5	12B
Q6	12A (To Date)+15B - 15M (Future)
Q7	10A
Q8	12F Management Reserve
Q9	4B
Q10*	Calculated (A7, Formula 6)
Q11	12F Total Contract - 12F Management Reserve
Q12	21D
Q13	21B
Q14	10S
Q15	10F
Q16	21A + (21T through 21X)
Q17	12G Total Contract
Q18	10A
Q19	7F
Q20	7H
Q21	7F
Q22	7F
Q23	4A

*Note that calculation(s) can be at the total contract level or PMB depending on the user's selection in the recalculation module

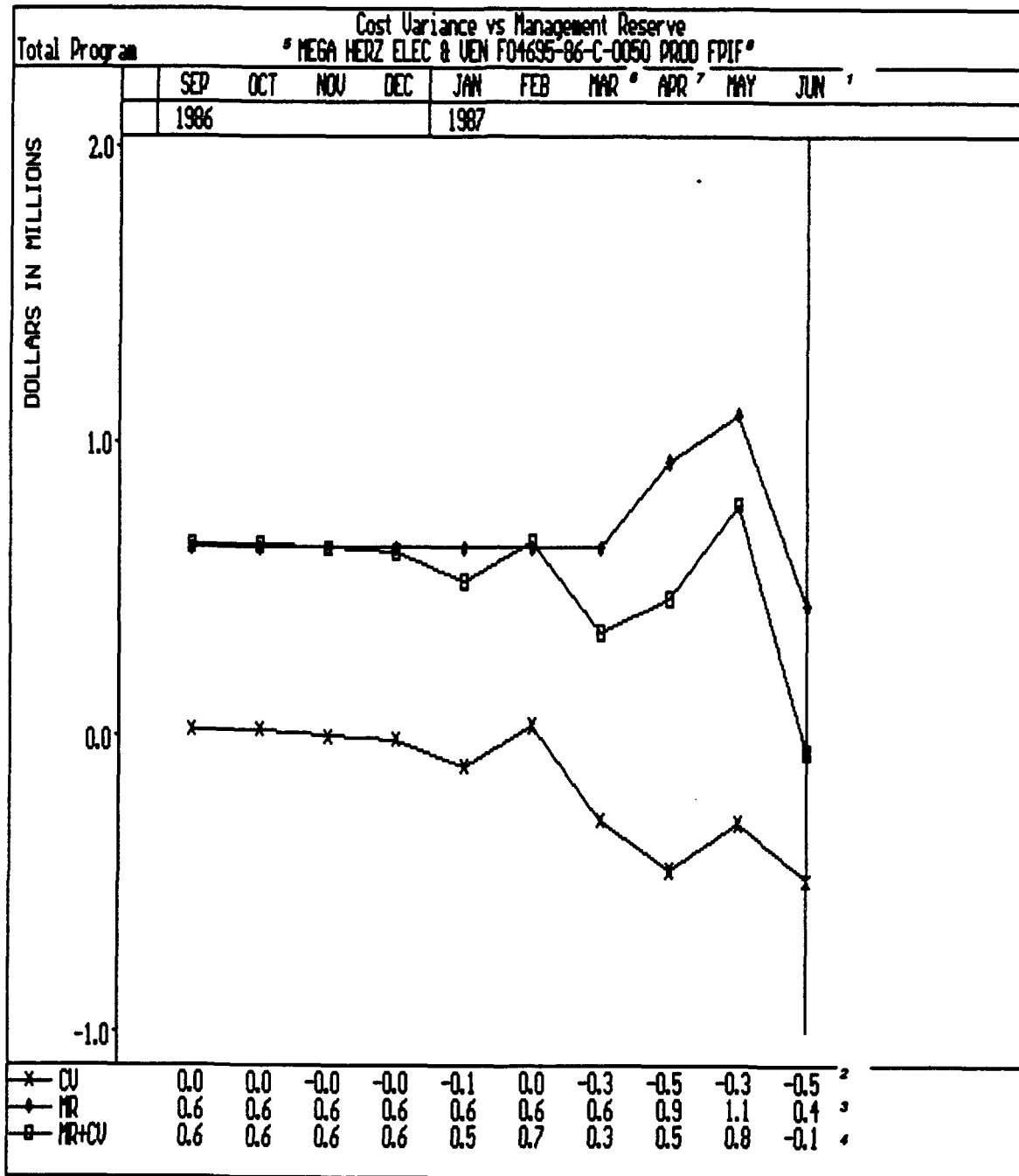
R



R. Enhanced Baseline

<u>Graph</u>	<u>Input Field</u>
R1	3A
R2	4J
R3	4B
R4	15A (To Date)+15B - 15M (Future) Selected Month
R5	15A (To Date)+15B - 15M (Future) Selected Month
R6	15A (To Date)+15B - 15M (Future) Selected Month
R7	12F Total Contract - 12F Management Reserve
R8	12F Management Reserve
R9	12F Total Contract
R10	4A

S



S. Cost Variance vs Management Reserve

<u>Graph</u>	<u>Input Field</u>
S1	2A
S2	12B - 12C
S3	12F Total Contract Management Reserve
S4	S2 + S3
S5	3A
S6	4A
S7	4C-D
S8	4B

T

WBS Narrative at Total Contract

Report Date: JUN 87 1

Contract Name: MOH-2 2

Contract Number: F04695-86-C-0050 3

Contractor: MEGA HERZ ELEC & VEN 4

Element Code: 1000 7

Financial Analyst: MR. E. MONEY 5

Contract Manager: MR. B. TECH 6

Element Name: MOH-2 8

CUMULATIVE PERFORMANCE

As of JUN 87, the work scheduled was \$7,279K.9 This means that the contractor expected to be about 35% complete (100*BCWS/BAC). Accomplishments, represented by the value of BCWP, indicate that \$6,851K 10 worth of work has been performed.

Work accomplished to date (BCWP) is less than the work that was scheduled (BCWS) indicating that the effort is behind schedule. Last month, BCWS was \$5,633K 11 and BCWP was \$5,342K 12.

Actual expenditures through this period are \$7,350K 13, which means that to date, the effort is costing more than expected.

In total, this element has a budget of \$20,796K 14. The contractor's latest revised estimate indicates a projected cost of \$20,761K 15. Last month the budget was \$20,076K 16 and the estimate was \$19,394K 17.

CUMULATIVE COST/SCHEDULE CHART

The cumulative cost/schedule graph displays cost and schedule variances from the beginning of the effort through the as-of-date of the data (in this case JUN 87). Both the schedule and cost variances are calculated from cumulative data. The schedule variance is below the zero line which indicates that the effort is behind schedule. The cost variance is below the zero line which indicates that it is unfavorable. The cumulative cost variance is \$-499K 18 as compared to last month's position of \$-301K 19. The variance at completion indicates that the contractor expects the cost variance to improve.

Watch for the following signs:

- Sudden changes in the direction of the lines,
- Unfavorable trends (downward) in the cost variance line, or
- Early unfavorable schedule variance trends.

COST PERFORMANCE INDICES CHART

The indices graph is a way of portraying cost performance that relates cumulative, current, and projected performance together. The cumulative CPI shows the historical track of cost performance based on a par value of 1. As of JUN 87, the CUM CPI is 0.93 20. The current period CPI shows the performance for the last month -- again based on a par value of 1. In this case the performance is 0.88 21.. The TCPI_LRE of 1.04 is calculated by dividing the work remaining, \$13,945K, by the estimate to complete this effort, \$13,411K.

T. AI Report

<u>Graph</u>	<u>Input Field</u>
T1	2A
T2	1A
T3	4A
T4	3A
T5	7D
T6	7E
T7	8A
T8	8B
T9	12A
T10	12B
T11	12A Current Period -1
T12	12B Current Period -2
T13	12C
T14	12F
T15	12G
T16	12F -1
T17	12G -1
T18	<i>Calculated (A5, Formula 4 Cumulative)</i>
T19	<i>Calculated (A5, Formula 1 Current)</i>
T20	<i>Calculated (A5, Formula 6 Cumulative)</i>
T21	<i>Calculated (A5, Formula 6 Current)</i>

U

Format 5 Narrative - Work Breakdown Structure

Report Date: JUN 87 1
Contract Name: MOH-2 2 Financial Analyst: MR. E. MONEYs
Contract Number: F04695-86-C-0050s Contract Manager: MR. B. TECHs
Contractor: MEGA HERZ ELEC & VEN 4

Element Code: 1000 7
Element Name: MOH-2 s

Program narrative for the entire MOH-2 contract will be found here. s

All changes to Baseline and contract values should be explained in this area.

A proactive contractor will also include in this area an overall outlook for the program, some insight into upcoming events, and any looming problems or issues that could have an impact on the analysis of the